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FM 17-50

WAR DEPARTMENT FIELD MANUAL

SUPPLY, EVACUATION, AND TRAINS ARMORED UNITS

WAR DEPARTMENT • APRIL 1945

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FM 17–50

This manual supersedes FM 17–50, 7 November 1942, FM 17–55, 29 September 1942, and FM 17–58, 8 October 1942.

SUPPLY, EVACUATION, AND TRAINS, ARMORED UNITS

WAR DEPARTMENT • *APRIL 1945*

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WAR DEPARTMENT

WASHINGTON 25, D. C., 26 April 1945

FM 17–50, Supply, Evacuation, and Trains, Armored Units, is published for the information and guidance of all concerned.

[AG 300.7 (19 Mar 45)]

BY ORDER OF THE SECRETARY OF WAR:

OFFICIAL:
J. A. ULIO
Major General
The Adjutant General

G. C. MARSHALL
Chief of Staff

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Refer to FM 21–6 for explanation of distribution formula.

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CONTENTS

		Paragraph	Page
CHAPTER 1.	**SUPPLY.**		
Section I.	General	1–6	1
II.	Functions and Responsibilities of Combat Command and Armored Group Supply and Evacuation Sections	7–10	4
III.	Function and Responsibility of Unit Supply Officers	11–15	8
IV.	Procurement and Distribution of Supplies	16–23	12
CHAPTER 2.	**MEDICAL SUPPLY; PERSONNEL CASUALTIES, RECOVERY, EVACUATION, AND BURIAL: PRISONER OF WAR EVACUATION; VEHICULAR RECOVERY, EVACUATION, AND SALVAGE.**		
Section I.	Medical Supply	24–26	32
II.	Evacuation	27–28	35
III.	Burial	29–31	36
IV.	Prisoners of War	32	43
V.	Vehicular Recovery and Evacuation	33–35	45
VI.	Salvage	36–39	50
CHAPTER 3.	**RAIL AND WATER TRANSPORT.**		
Section I.	Water Transport	40–48	53
II.	Rail Movements	49–53	57

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CHAPTER 4. TRAINS AND TRAINS HEADQUARTERS COMPANY.

		Paragraph	Page
Section I.	General	54–58	63
II.	Training	59–60	66
III.	Control, Communication, Liaison, and Orders	61–64	67
IV.	Maintenance, Evacuation, and Supply	65	70
V.	Reconnaissance	66–67	71
VI.	Marches, Bivouacs, Security	68–70	71
INDEX			78

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CHAPTER 1

SUPPLY

Section I. GENERAL

1. **PURPOSE.** This manual is designed as a supply and evacuation guide for armored units.

2. **SCOPE.** This manual covers supply of armored units; evacuation of personnel, prisoners of war, vehicles, and salvage; rail and water transportation and trains in the theater of operations.

3. **PLANNING.** Supply plans are interdependent with tactical plans and therefore are developed concurrently.

a. Flexibility. Even though the primary administrative and tactical plans are based on an offensive operation, the commander and his staff must make plans covering every possible contingency. Plans must be made based on the offense, the defense, a withdrawal, or a retirement.

b. Alternate plans. The possibility of change in plans must not be overlooked. Alternate supply plans are made in order to gain surprise by taking maximum advantage of armor's inherent mobility. Every plan should have an alternate plan that will take care of an emergency.

For military terms not defined in this manual see TM 20–205 and for list of publications see FM 21–6.

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4. CLASSIFICATION OF SUPPLIES AND DEFINITIONS. See FM 100–10.

5. REFERENCES. *a.* The basis of supply of an armored unit, together with useful planning data, is found in the following:

FM 100–10, Administration.
FM 101–5, The Staff and Combat Orders.
FM 101–10, Organization, Technical and Logistical Data.
FM 101–15, Traffic Circulation and Control.
FM 9–5, Ordnance Service in the Field.
FM 9–6, Ammunition Supply.
FM 10–10, Quartermaster Service in Theater of Operations.
FM 9–10, Ordnance Field Maintenance.
TM 38–205, Army Supply Procedure.
TM 38–403, Station Supply Procedure.

Tables of Organization and Equipment (T/O & E) and Tables of Equipment (T/E), covering the unit or units listing supplies and equipment taken into the field by the organization.

Tables of Equipment (T/E) 21 listing individual clothing and equipment.

Allowances of Expendable Supplies listing expendable supplies issued for use in garrison or field.

b. General. Information concerning the functions of armored service organizations in procurement and distribution of supplies is found in the Field Manual of the unit concerned.

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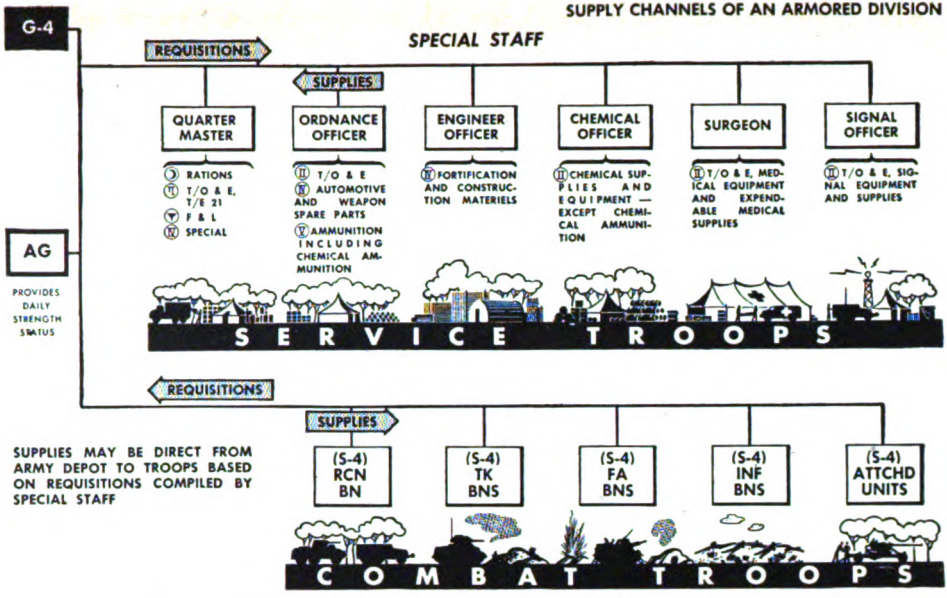

Figure 1. Supply channels of an armored division.

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6. **ORGANIZATION.** *a.* The supply channels of an armored division are shown in figure 1.

b. Organization of the various supply units are shown in appropriate Tables of Organization.

Section II. FUNCTIONS AND RESPONSIBILITIES OF COMBAT COMMAND AND ARMORED GROUP SUPPLY AND EVACUATION SECTIONS

7. **GENERAL.** *a. Division.* The armored division commander is assisted in supply functions by the supply and evacuation (G–4) personnel of the general staff and a special staff representative of each of the principal supply services. For duties of the general and special staff see FM 101–5.

b. Combat command or group. The combat command, armored group, or similar organization commander is assisted in supply functions by the supply and evacuation (S–4) personnel of his staff. Under certain circumstances a representative of each of the principal supply services (quartermaster, ordnance, engineer, chemical, medical, signal) may be attached from higher headquarters.

8. **SCOPE.** This section is a supply and evacuation guide for the S–4 when—

a. The combat command operates under division control.

b. The combat command operates independent or division.

c. Elements of an armored group operate as a single command.

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d. Elements of the group are attached to—

(1) A corps or army.

(2) An armored division.

(3) An infantry or cavalary division.

9. COMBAT COMMAND. ***a. Under division control.*** (1) In the theater of operations, elements of an armored division operate normally as combat commands. Under these circumstances combat command headquarters is an integral part of the channel of command and assumes a close supervisory role for the supply, maintenance, evacuation, and related administrative functions of attached elements as well as its own headquarters troops. Pertinent combat command headquarters personnel act in an advisory capacity on ammunition allocations, and coordinate supply, maintenance, and evacuation functions between higher headquarters and combat command elements.

(2) In order to retain flexibility of organization and facilitate attachment and release, subordinate unit supply requests are *not* consolidated by the supply and evacuation section (S–4) of the combat command. However, they are scrutinized carefully for completeness and accuracy, and forwarded to division for consolidation. The combat command S–4 functions as a coordinator of supply activities between combat command elements and division headquarters. The establishing of combat command supply dumps is accomplished when necessary but only on division orders. Battalion field trains that revert to combat command control are kept ready to rejoin their organic units on short notice. For a more complete discussion of trains see chapter 4.

(3) Even though the combat command is operating under direct division control, anticipatory plans are made

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in the event that the combat command is detached from the division and operates independently.

b. Operating independently. (1) When the combat command operates independently, the commander and pertinent members of his special staff are charged with the responsibility of supplying and maintaining the subordinate elements of the command.

(2) *Functions of supply and evacuation (S–4) section.* (*a*) The supply and evacuation section is a clearing house for the supply requisitions of all subordinate elements of the command. Requisitions from organic subordinate units *are* consolidated and forwarded to higher headquarters (corps or army) for necessary action. Requisitions from nondivisional units that are attached to the combat command are forwarded along with the consolidated requisition but are kept separate to facilitate attachment and release.

(*b*) The S–4 establishes procedures and supervises the preparation and execution of arrangements for supply, evacuation, salvage, transportation, and related administrative matters including supervision of the plan of interment and registration of the dead; also the temporary repair of roads and preparation of circulation maps in coordination with S–3. (See chapter 2.)

(*c*) S–4 makes recommendations to the commander on supply and evacuation matters, develops the details of pertinent administrative plans, prepares administrative orders, and supervises their execution.

(*d*) To insure efficient supply, maintenance, and evacuation procedures, pertinent members of the various supply services should be attached to the combat command from higher headquarters. The headquarters from which this personnel will be detailed or attached to combat command

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will depend on the duration and on the logistical aspects of the independent operation.

10. ARMORED GROUP. ***a. As an independent command.*** (1) The armored group operating as an independent command has supply, maintenance, and evacuation responsibilities very similar to those of combat command when combat command operates independently.

(2) The S–4 consolidates supply requests of the attached lower elements and forwards the consolidated request to the next higher headquarters, normally corps or army, for necessary action.

(3) If an independent operation of extended duration is contemplated, the attachment of special supply service personnel from higher headquarters to the group must be considered.

(4) If the operation is a combined army-navy action, it is advisable to detail a liaison officer competent to advise naval personnel on supply requirements for the group.

b. Elements of group attached direct to a higher headquarters. Although the higher headquarters to which an element is attached is the procurement agency for that element, close, constant liaison between the group headquarters personnel and higher headquarters supply agencies must be maintained to insure adequate supplies and maintenance, and efficient evacuation procedures.

(1) When a subordinate unit of the group is attached to an armored division, the supply, maintenance, and evacuation channels maintained for the division are adequate. However, group headquarters personnel must maintain close liaison with division (in some cases combat command) headquarters in order to effect speedy, efficient attachment,

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and to expedite detachment. When an element reverts back to group control, care must be taken to insure that supplies on requisition or call are channeled properly to insure the detached element adequate supplies and maintenance.

(2) When a subordinate unit of the group is attached to an infantry division the closest possible liaison must be maintained. Channels for supplying, maintaining, and evacuating the attached unit must be established. When the infantry division channels are inadequate, it is the responsibility of group headquarters personnel to establish the necessary liaison with rear installations to insure a constant flow of supplies, adequate support from higher echelon maintenance establishments, and efficient evacuation procedures. To accomplish this, group headquarters liaison personnel must make a detailed evaluation of the infantry division supply, maintenance, and evacuation capabilities and submit detailed recommendations for additional facilities to the commanding general or pertinent members of his general staff when existing facilities are inadequate to meet the added supply, maintenance, recovery, and evacuation burden.

Section III. FUNCTION AND RESPONSIBILITY OF UNIT SUPPLY OFFICERS

11. GENERAL. The commander of a battalion, or separate company or similar organization is assisted in the supply function of command by the supply and evacuation (S–4) personnel of his staff.

12. SUPPLY AND EVACUATION SECTION.

a. This section, identified as S–4, is a clearing house for

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the supply requisitions of the subordinate elements of the command.

b. The S–4 establishes procedures, and supervises the preparation and execution of supply, evacuation, transportation, and related administrative matters in accordance with higher headquarters directives.

13. RESPONSIBILITY OF UNIT SUPPLY OFFICER. The unit supply officer is responsible for the—

a. Establishment of the chain of supply with the next higher headquarters and the coordination of recovery and evacuation procedures with higher echelons.

b. Procurement, temporary storage, and distribution of all unit supplies.

c. Supervision of maintenance of equipment and property responsibility.

d. Preparation of the company property book for each newly activated company of the organization.

e. Keeping of a jacket file for each subordinate unit.

f. Editing and consolidation of requisitions. (See TM 38–220 and TM 38–403.)

g. Notification of unit commanders of all changes in authorized allowances of equipment.

h. Frequent inspection to insure that authorized articles of equipment for each unit are complete and serviceable, and that there is no waste, misuse, or overaccumulation of such property.

i. Notification of the unit commander of all cases where his unit uses supplies and equipment in excess of the average consumption of similar units under like conditions.

j. Drawing from the appropriate supply officer all

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property required and reissue of such property to the lower units in accordance with prescribed policy.

k. Advise subordinate unit commanders on methods of obtaining supplies, maintaining records, and accomplishing forms.

14. RECORDS. Paper work is kept at a minimum. Certain records, however, are maintained by the organization supply officer.

a. Jacket file. (1) *Action completed.* A manila folder or large envelope, one for each subordinate unit, serves as a handy file for shipping tickets, requisitions, and other forms pertaining to subordinate unit property upon which deliveries have been completed.

(2) *Action pending.* A file as above for requisitions and other forms upon which deliveries have not been completed or final action taken.

b. Requisition register. Some handy form is maintained for register of requisitions consolidated and initiated in the office of the S–4, with entries of actions taken to date.

c. ***Requisition file.*** A file of retained requisitions must be kept.

d. Additional. Practice dictates any additional records which facilitate the supply officer's work. Duplication of records is avoided.

15. RESPONSIBILITY OF UNIT COMMANDER. The commander is required to—

a. Possess in serviceable condition all prescribed articles of authorized allowances of equipment, or a validated requisition or similar confirmation of request for such articles as are missing.

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b. Determinine by frequent inspections that all prescribed items of authorized allowances of equipment and individual clothing and equipment of officers and enlisted men of the unit are complete and serviceable.

c. Instruct in and enforce the rules and regulations of the proper care and maintenance of public property.

d. Maintain a company property book which always reflects the status of all articles of authorized allowances of equipment as follows:

(1) Items actually on hand and in serviceable condition.

(2) Not on hand but shown on a validated requisition.

(3) On hand in excess of authorized allowances with authority therefor.

(4) Unit assemblies, kits, chests, and other such equipment are carried in the company property book as single items. The contents must be complete but need not be listed in detail.

(5) Items of individual clothing and equipment are issued under provisions of AR 35–6560 and entered in appropriate individual clothing and equipment records.

e. Obtain properly executed property vouchers covering loss, damage, or destruction of property for which the unit commander is responsible.

f. Make appropriate entries in the property book and on individual records to cover property transferred with enlisted men on transfer from unit or organization.

g. Make a joint inventory and adjust any difference upon transfer of property to a new unit commander. The new commander acknowledges responsibility by certifying the company property book.

h. Supervise packing and crating of unit equipment to

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insure that no unauthorized property is shipped without prior authority.

i. Assume responsibility for all public property under unit control.

Section IV. PROCUREMENT AND DISTRIBUTION OF SUPPLIES

16. GENERAL. *a.* This section is designed as a guide for supplying an armored division, combat command, armored group (or similar unit) or separate battalion in the theater of operations. Where reference is made to G–4 functions in this section, they are generally applicable to S–4 combat command or armored group when the combat command or armored group is operating independently.

b. Great mobility and long-range operations cause armored elements to be especially sensitive to supply in combat. The supply officer should be constantly alert and prepared to cope at once with any eventuality. The supply system must be flexible. Transportation should have the same mobility as the supported troops. Alternate supply routes are imperative. Rapid forward displacement of supply installations is the rule. Variations made necessary by tactical groupings are normal. Necessity for fighting when moving supplies forward, with the resulting loss of supplies, supply vehicles, and personnel, can be expected. Dumping nonessential loads to provide trucks for critical supplies should be considered. Protection of trains and supply installations will always be included in the supply plans. Planning the development and utilization of local resources should be given consideration.

17. PROPERTY ACCOUNTING. Property ac-

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counting in the theater of operations is prescribed by the theater commander. In the combat zone the methods of accounting for property conform to the provisions of FM 100–10. While there is no property accountability, the company commander is responsible for all property under his control. He must impress on the minds of all personnel within his command the importance of conservation of equipment and material.

18. ORGANIZATION OF SUPPLY TRANSPORTATION. ***a. Trains.*** The train of a unit is that portion of the unit's transportation with its accompanying personnel which operates under the immediate orders of the unit commander primarily in supply, evacuation, and maintenance. Although certain trucks may be assigned prescribed loads, their use is not limited to transporting such loads. Except for prime movers and weapons carriers, all of the large capacity trucks of a unit are considered as part of a *pool of transportation* to be used as required.

(1) Trains are designated by purpose, such as ammunition train, maintenance train, medical train, kitchen and baggage train.

(*a*) Those trains required for immediate support (ammunition, maintenance, fuel and lubricants, and medical) may be designated as *combat trains.*

(*b*) Those trains not required for immediate support of combat (kitchen and baggage trains, administrative trains, heavy maintenance, water, and may include some ammunition, fuel, and lubricants trucks) may be designated as *field trains.*

(2) Company trains consist of those vehicles assigned to companies or similar units by Tables of Organization and

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Equipment for command, reconnaissance, maintenance, weapons carrying or towing, and tactical purposes.

b. Army "type load" motor trains. In protracted operations where it is impracticable to establish railheads or truckheads within reach of the division, army may effect distribution by relays of "type loads" motor trains direct from army supply points. Each section consisting of predetermined amounts of Class I, III, and V supplies is dispatched with guides and the necessary protective elements directly to the unit from army control points.

c. Rolling reserve. (1) For extended operations lasting for a limited period of time, army may provide a division rolling reserve of type loaded vehicles for Class III and V supplies.

(2) Under this system each organizational fuel, lubricant, and ammunition supply vehicle has its counterpart in the division rolling reserve. Empty organizational vehicles are routed, by infiltration or in convoy, through the rolling reserve bivouac to army supply points for refill. At the same time an equal number of similarly loaded trucks are released from the rolling reserve to the units. Trucks refilled at army supply points rejoin the rolling reserve.

(3) An exchange of drivers may be made at the rolling reserve bivouac.

d. The guiding principal in supply is to make the most efficient use of available transportation to effect timely delivery to the using troops. Normally, distribution schedules are announced. If schedules are not announced, traffic control measures are taken en route and at the supply point to avoid bunching.

19. **CLASS I.** Supply channels are shown in figure 2.

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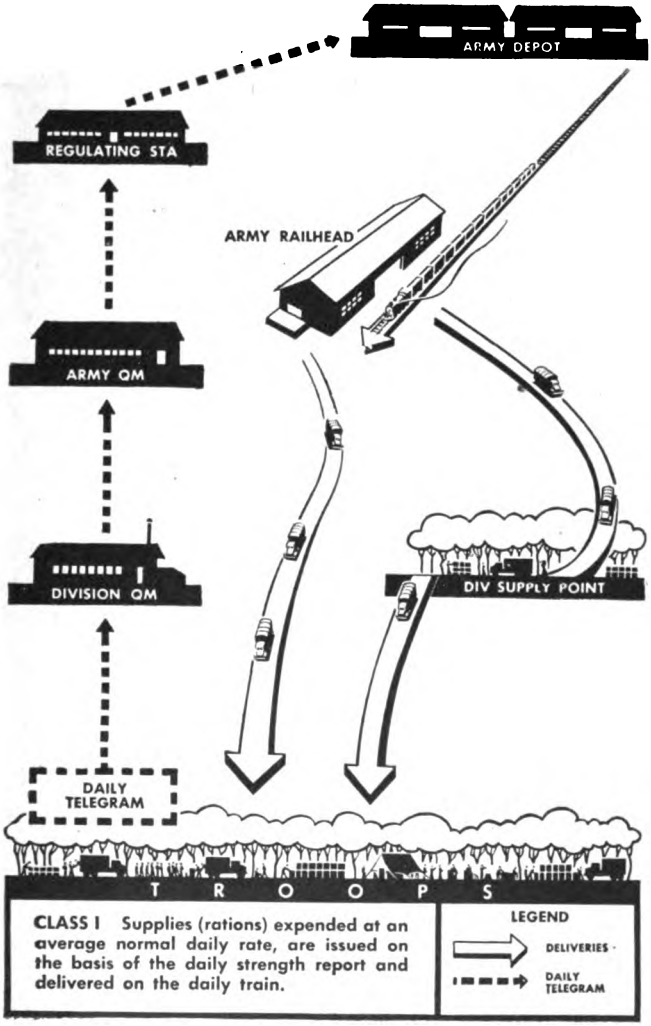
ARMY DEPOT
REGULATING STA
ARMY RAILHEAD
ARMY QM
DIVISION QM
DIV SUPPLY POINT
DAILY TELEGRAM
T R O O P S
CLASS I Supplies (rations) expended at an average normal daily rate, are issued on the basis of the daily strength report and delivered on the daily train.
LEGEND
DELIVERIES
DAILY TELEGRAM

Figure 2. Supply channels Class I.

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a. Rations prescribed for field service are specified by the War Department or the commander of field forces.

(1) *Field ration A* corresponds to perishable garrison rations and is not suitable as a reserve ration.

(2) *Field ration B* is similar to ration A except that nonperishable substitutes suitable for reserve, replace perishable items.

(3) *Field ration C* consists of three cans of prepared meat and vegetables and three cans of crackers, confection, and soluble beverage. This ration being nonperishable is suitable for individual or unit reserve.

(4) *Field ration D* consists of three nonperishable 4-ounce chocolate bars and is used as an individual reserve.

(5) *Field ration K* consists of three units, each containing one meal, packed in a rectangular container, and is used to replace ration C in special circumstances.

(6) *The 10-in-1 ration* provides 1 ration for 10 men for 1 day or 2 rations for 5 men for 2 days. The components are: butter, milk, vegetables, beverage, meat and egg (or cheese), coffee, salt, peanuts, sugar, jam, cereal, toilet paper, cigarettes, paper towel, atabrine tablets, and halazone tablets.

(7) Unless otherwise announced, the ration cycle begins with supper. (See figs. 3, 4, and 5.) Normally, ration sections carry one A or B ration. Ration sections issue rations to the kitchen after supper and proceed at once to Class I supply points for refill.

b. Plans are made to maintain a regular supply of A or B rations in the kitchen and to serve cooked meals to the troops.

(1) In the event that the kitchen trucks are unable to accompany their units the battalion S–4 establishes a rear echelon in the service company bivouac where all kitchen

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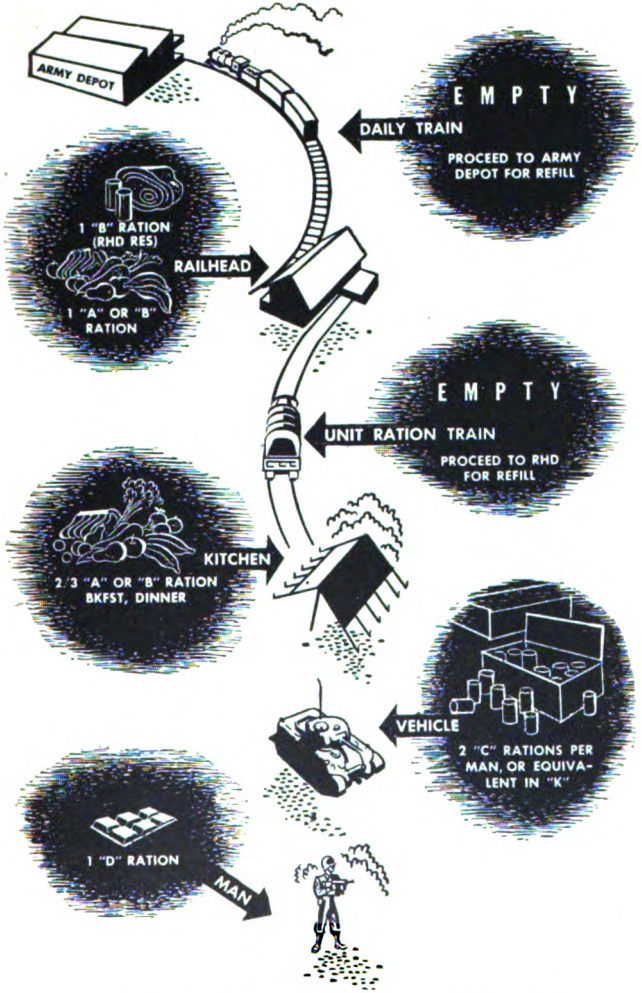

Figure 3. Division ration situation after supper.

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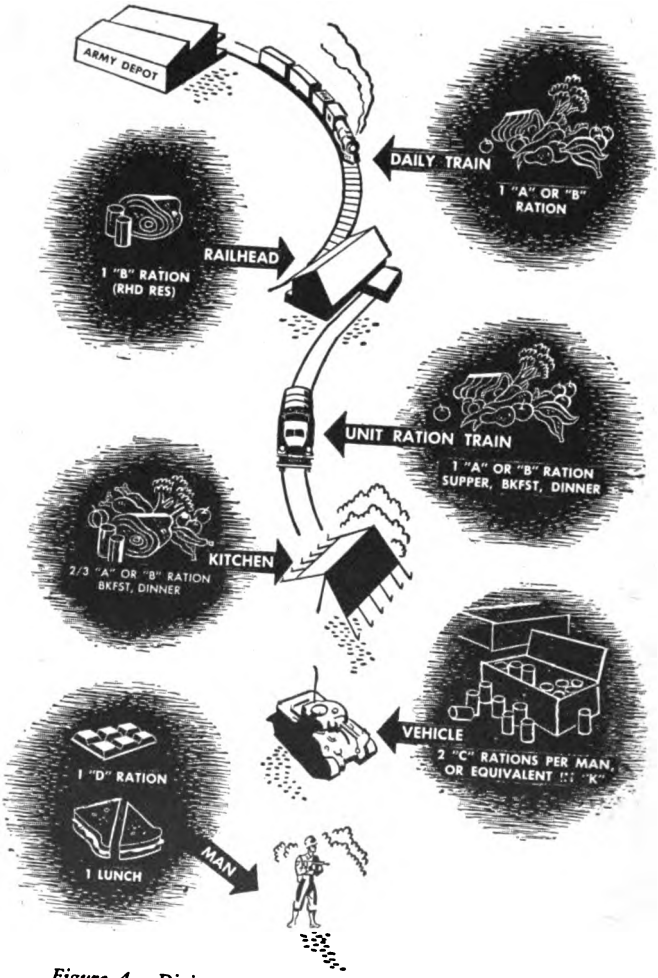

Figure 4. Division ration situation before breakfast.

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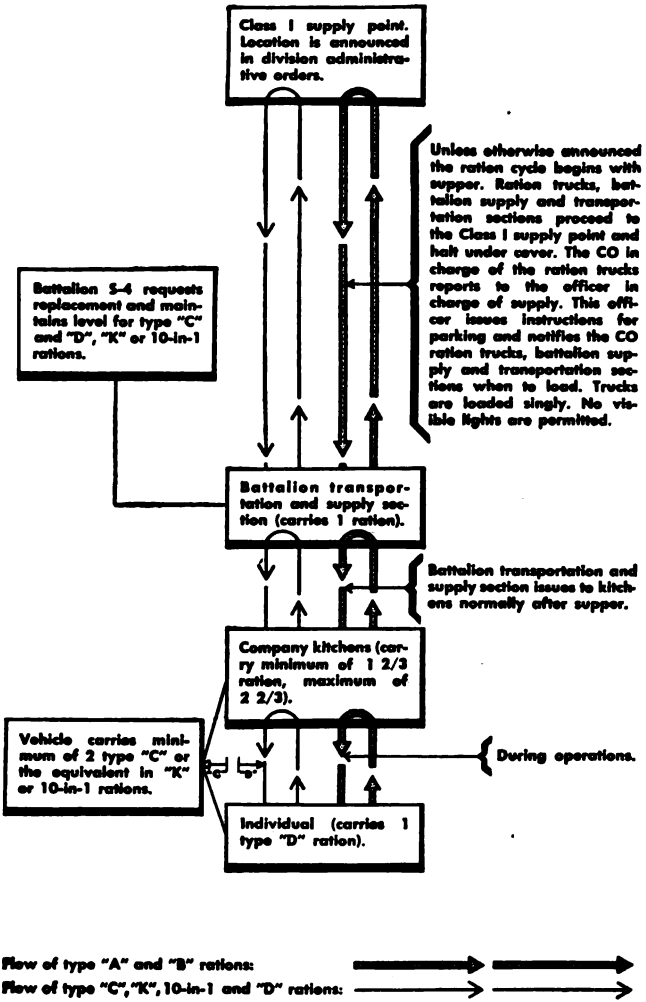
Class I supply point. Location is announced in division administrative orders.
Unless otherwise announced the ration cycle begins with supper. Ration trucks, battalion supply and transportation sections proceed to the Class I supply point and halt under cover. The CO in charge of the ration trucks reports to the officer in charge of supply. This officer issues instructions for parking and notifies the CO ration trucks, battalion supply and transportation sections when to load. Trucks are loaded singly. No visible lights are permitted.
Battalion S-4 requests replacement and maintains level for type "C" and "D", "K" or 10-in-1 rations.
Battalion transportation and supply section (carries 1 ration).
Battalion transportation and supply section issues to kitchens normally after supper.
Company kitchens (carry minimum of 1 2/3 ration, maximum of 2 2/3).
Vehicle carries minimum of 2 type "C" or the equivalent in "K" or 10-in-1 rations.
During operations.
Individual (carries 1 type "D" ration).
Flow of type "A" and "B" rations:
Flow of type "C", "K", 10-in-1 and "D" rations:

Figure 5. Ration supply diagram.

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trucks are assembled. From this point kitchen trucks are dispatched at night with cooked meals to locations from which food can be carried to the troops or the troops moved back in relays to the kitchen trucks.

(2) Every effort is made to retain the reserve C, D, K, or 10-in-1 rations intact, using them only when necessary.

c. Water. (1) Water points, recommended by the engineer and approved by G–4 (or by the combat command S–4 when combat command operates independently) are located within economical hauling distance of the using troops. The location, with the hours of opening and closing are announced in division orders. Units draw water as necessary from these designated points. Normally, one water purification unit is allotted to each combat command. (See FM 17–45.) Traffic circulation and control at water points are functions of the engineers.

(2) Water containers are filled at approved sources at every opportunity. All water containers, individual and unit, should be full at daylight. (See fig. 6.)

(3) In areas where water is scarce, additional transporter units are furnished by higher headquarters. Operating under limited conditions the use of water is prescribed by higher headquarters.

20. CLASS II. *a. General.* (1) Each division service (except the QM and CW) carries a reserve of some items of Class II supplies. Organizational replacements are obtained by requisition or exchange at the appropriate division service bivouac or at such places as may be directed.

(2) Army normally issues Class II supplies from an army depot or by direct shipment to the division railhead or truckhead. (See fig. 7.) Unserviceable motor vehicles

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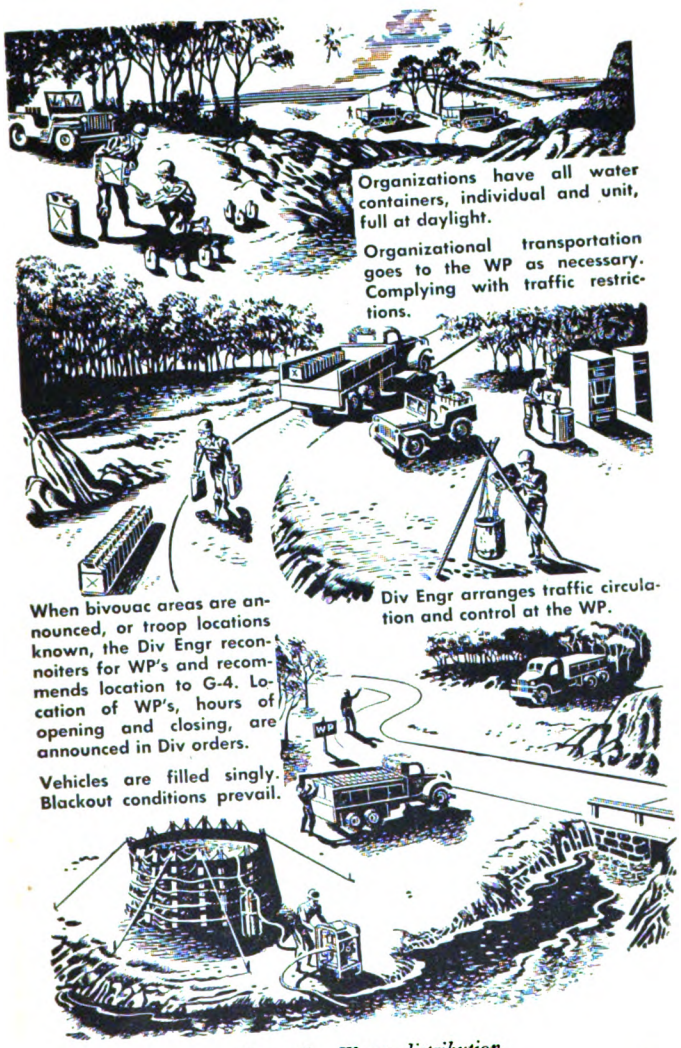
Organizations have all water containers, individual and unit, full at daylight.
Organizational transportation goes to the WP as necessary. Complying with traffic restrictions.
When bivouac areas are announced, or troop locations known, the Div Engr reconnoiters for WP's and recommends location to G-4. Location of WP's, hours of opening and closing, are announced in Div orders.
Div Engr arranges traffic circulation and control at the WP.
Vehicles are filled singly. Blackout conditions prevail.
WP

Figure 6. Water distribution.

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may be exchanged for serviceable vehicles at army ordnance depots.

(3) The army provides labor to load organizational trucks at the army supply point. When established, it is the responsibility of the division commander to procure the labor for loading organizational trucks at the division supply point.

b. Normally replacements of T/E supplies and equipment except ordnance are not made during combat, but are obtained on requisition during the refitting periods after combat. Organizational requisitions are submitted to the appropriate special staff section and, when allocations have been made, items are drawn at the designated army supply point. However, during combat, essential items may be forwarded by army on the daily train and picked up at the division railhead.

21. CLASS III. *a.* Fuel and lubricant supply points are established by army on recommendation of G–4. Their location is announced in division orders.

b. Prior to combat, all vehicle tanks are filled from the organizational fuel and lubricant (F & L) section. After refueling, loads are redistributed so as to fully load the maximum number of trucks. Empty trucks are sent in groups to the Class III supply point where an exchange of cans is made. Army maintains sufficient full cans of fuel and lubricants as well as labor for loading to permit rapid resupply of the division. (See figs. 8 and 9.) Normally one quartermaster company, gasoline supply, from army operates the F & L supply point. (See FM 10–10.)

c. Fuel consumption varies depending on the type of operation, terrain, weather, and the condition of the vehicles.

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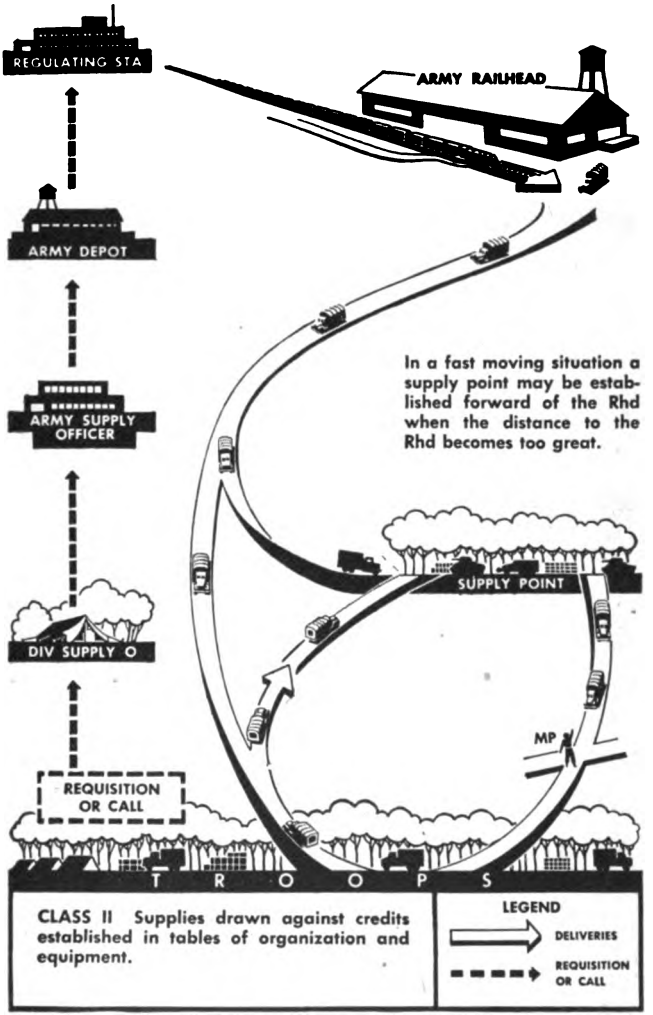
REGULATING STA
ARMY RAILHEAD
ARMY DEPOT
ARMY SUPPLY OFFICER
DIV SUPPLY O
In a fast moving situation a supply point may be established forward of the Rhd when the distance to the Rhd becomes too great.
SUPPLY POINT
MP
REQUISITION OR CALL
T R O O P S
CLASS II Supplies drawn against credits established in tables of organization and equipment.
LEGEND
DELIVERIES
REQUISITION OR CALL

Figure 7. Supply channels Class II.

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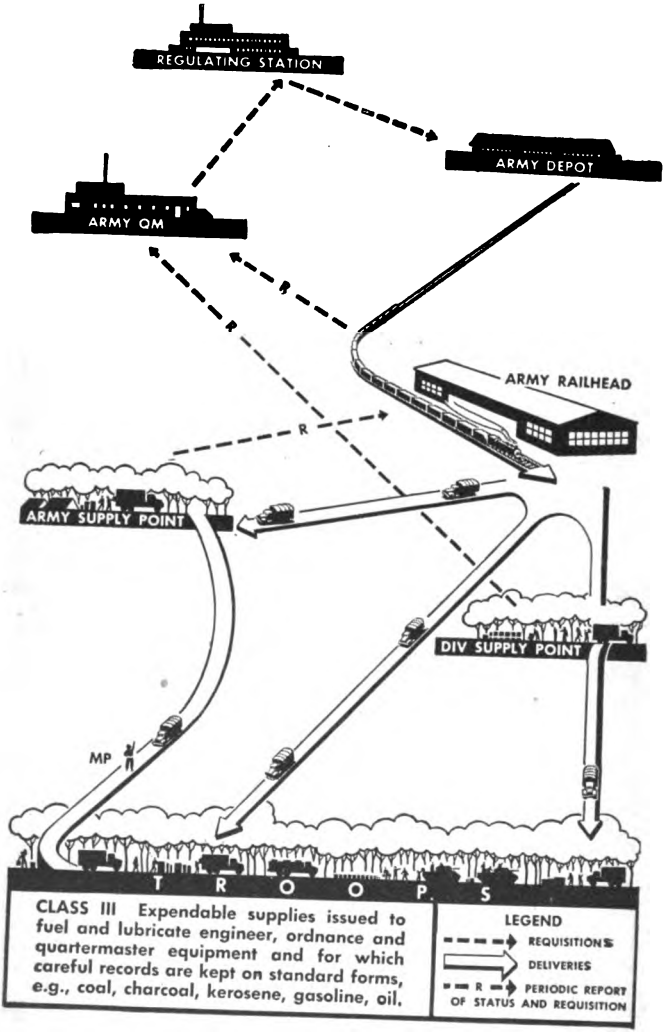
REGULATING STATION
ARMY DEPOT
ARMY QM
ARMY RAILHEAD
R
R
R
ARMY SUPPLY POINT
DIV SUPPLY POINT
MP
T R O O P S
CLASS III Expendable supplies issued to fuel and lubricate engineer, ordnance and quartermaster equipment and for which careful records are kept on standard forms, e.g., coal, charcoal, kerosene, gasoline, oil.
LEGEND
REQUISITIONS
DELIVERIES
R PERIODIC REPORT OF STATUS AND REQUISITION

Figure 8. Supply channels Class III.

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Estimates of future expenditures are based on the "unit mile" which is the amount of fuel required to move all vehicles of the unit 1 mile. (See FM 101–10.) A periodic check of the unit mile will insure an accurate basis for planning. This can best be done by keeping accurate records of fuel consumption. Estimates of lubricants required are based on experience. (See FM 101–10.)

22. **CLASS IV.** *a.* The army normally directs issue of Class IV supplies from army depots, or infrequently arranges through the regulating officer for shipment direct from the communications zone to unit railheads or truckheads. (See fig. 10.)

b. Army maintenance service normally provides replacement of spare parts to the ordnance maintenance battalion service park within 48 hours of receipt of requisitions. Within the division, replacements for major and subunit assemblies are obtained by direct exchange at the ordnance maintenance battalion bivouac if the worn assemblies are available for exchange; otherwise they are obtained by requisition. Contact parties from the division ordnance battalion visit units daily. Requests for parts may be made to the contact party. Parts are delivered to the unit on the next visit of the contact party.

c. When bulky Class IV supplies exceed transportation facilities of the service agency concerned, additional trucks are furnished from the trains or from quartermaster truck companies normally attached to the division. The providing of additional transportation is the responsibility of G–4. Dumping of combat loads is kept to the minimum.

23. **CLASS V.** *a.* The load of ammunition for an armored division is prescribed by the division commander

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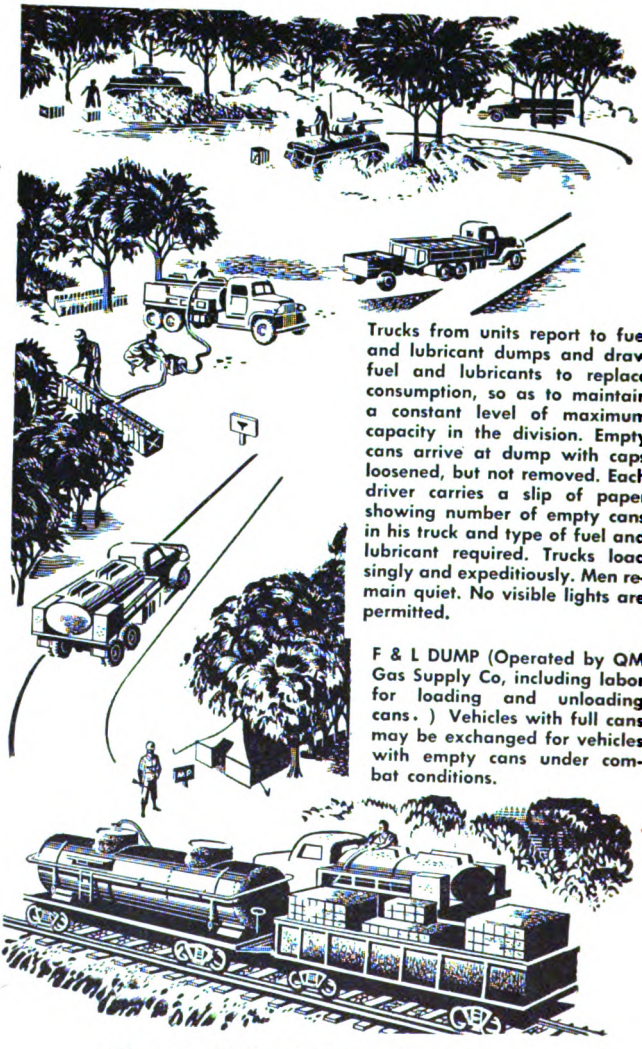

Trucks from units report to fuel and lubricant dumps and draw fuel and lubricants to replace consumption, so as to maintain a constant level of maximum capacity in the division. Empty cans arrive at dump with caps loosened, but not removed. Each driver carries a slip of paper showing number of empty cans in his truck and type of fuel and lubricant required. Trucks load singly and expeditiously. Men remain quiet. No visible lights are permitted.

F & L DUMP (Operated by QM Gas Supply Co, including labor for loading and unloading cans.) Vehicles with full cans may be exchanged for vehicles with empty cans under combat conditions.

Figure 9. Fuel and lubricant distribution.

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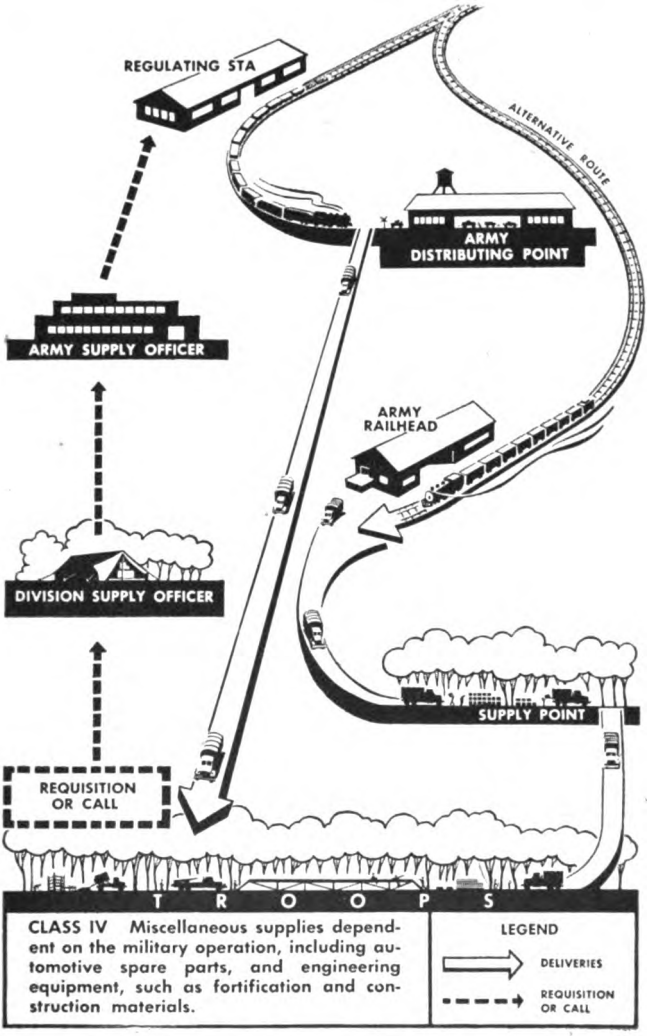

Figure 10. Supply channels Class IV.

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or higher authority. In order to carry the ammunition allowances prescribed in FM 101–10, additional quartermaster truck companies will need to be attached from army.

b. Army provides a balanced stock of ammunition at an ammunition supply point (ASP) within hauling distance of division transportation. Normally this ammunition is stacked on the ground but it may be kept on railroad cars or army trucks as a rolling reserve. Personnel for operation of the ASP, including that for loading vehicles, is normally provided by army. (See fig. 11.)

c. Army controls ammunition supply to division either by definite allocation of credits to the division or by directing that a definite level of supply, usually the prescribed loads, will be maintained within the division.

d. Control of ammunition supply in the division is established and announced to all concerned in division administrative orders. Location of ASP's and ACP (ammunition control point) and special instructions concerning ammunition supply are usually included in the body of administrative orders. Standing procedures in ammunition supply are usually included in an Ordnance Annex to administrative orders as an SOP (standing operating procedure). Normally ammunition credits are not allocated to subordinate units of the division but this method of control may be advisable in some situations.

e. The ACP (ammunition control point) is located on the axis of supply between the unit train bivouacs and the ASP. The division ammunition officer (DAO) is located at the ACP. He is responsible for controlling the supply of ammunition to units of the division, in accordance with established policies, for consolidating ammunition situation reports rendered by units of the division and for the keeping

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of all records and rendering of all division reports of ammunition supply. For detailed duties of the DAO, see FM 9–6.

f. Using units obtain ammunition at ASP's by presenting transportation orders (WD AGO Form 581) which specify the items and quantity of each to be issued. These transportation orders may be prepared by the munitions officer (or S–4) of the using unit and submitted to the DAO for authentication or they may be prepared by the DAO for informal request made by the using units. In either case the signature of the DAO is necessary, unless unauthenticated transportation orders have been expressly authorized. Unit munition officer (or S–4) should compute tonnage of ammunition called for by the transportation order and insure that sufficient trucks are assigned to haul the tonnage involved. Ammunition should be requested in such quantities as do not involve breaking of full boxes or containers.

g. When a using unit is so situated that it is difficult to contact the DAO issue of ammunition on unauthenticated transportation orders may be authorized. In such cases the ASP will require duplicate copies of the transportation order. In emergency any unit may draw ammunition from an ASP without a transportation order.

h. The officer in command of the convoy precedes the trucks to the ACP where he has the transportation order authenticated by the DAO. The trucks do not usually stop at the ACP. The convoy commander should arrive at the ASP before the trucks and report to the ASP office, which is usually located near the entrance to the ASP. At the ASP office a tally-out card is prepared for each truck, listing the ammunition to be loaded on each truck, and given to

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the truck driver. Guides lead the vehicles to the places where they are to be loaded.

i. In some situations the division may establish and operate an ASP.

j. Ammunition situation reports (WD AGO Form 580) are made periodically, as prescribed in division administrative orders, by unit munitions officers to the division ammunition officer. The latter consolidates these reports and renders consolidated report to higher headquarters and to division G–4.

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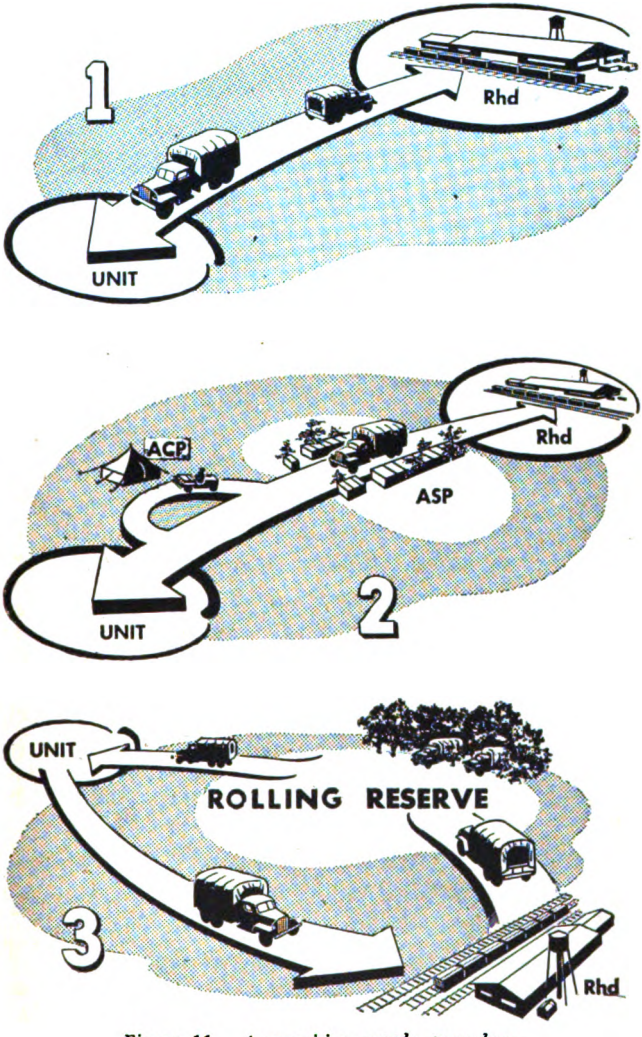

Figure 11. Ammunition supply procedure.

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CHAPTER 2

MEDICAL SUPPLY; PERSONNEL CASUALTIES, RECOVERY, EVACUATION, AND BURIAL; PRISONER OF WAR EVACUATION; VEHICULAR RECOVERY, EVACUATION, AND SALVAGE

Section I. MEDICAL SUPPLY

24. GENERAL. ***a. Organization.*** (1) The armored medical battalion consists of a headquarters and headquarters company and three medical companies.

(2) Each medical company consists of a company headquarters, a collecting platoon, and a clearing platoon.

(3) Unit medical detachments are organized into sections appropriate in size to the unit supported and are equipped with cross-country ambulances and ¼-ton trucks equipped with litter racks for evacuation.

(4) For detailed organization of armored medical units, see current Tables of Organization.

b. Employment. For detailed instructions on employment of armored medical units, see FM 17–80.

25. SUPPLY PROCUREMENT. ***a.*** Medical supplies and equipment for the division are normally obtained by the medical supply section of the headquarters company, armored medical battalion, at designated army medical supply depots or sections thereof. Under exceptional circumstances medical supplies and equipment are forwarded by army to railheads, truckheads, or to airheads

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serving the division. Army usually provides independent corps with an advanced section of the army medical supply depot. Major elements of independent corps obtain medical supplies by pickup from this advanced section.

b. In combat, requisitions for medical supplies are informal. Unit requisitions are sent to the medical supply section, consolidated, and sent to the higher headquarters supply point for the indicated action. The medical supply section personnel is informed as to when and where the supplies are to be picked up. They draw the supplies in bulk and issue them to the medical companies in support of the major combat elements, who in turn, send them forward, utilizing the ambulances returning to the front.

c. Medical detachments detailed for close support of the combat elements maintain a prescribed level of medical supplies. Unit emergency requests are filled from these stocks.

26. RESPONSIBILITIES OF DIVISION, COMBAT COMMAND, GROUP, AND BATTALION SURGEONS. ***a. Planning.*** Tactical and administrative plans are developed concurrently. The surgeon, in each case, is responsible for the development of the medical plan. This plan includes provisions for medical supply, location of medical installations, and routes of evacuation. The medical plan is coordinated with higher, adjacent, and lower headquarters, and is included in the administrative order or field order.

b. Division surgeon. The duties of the division surgeon are covered in FM 101–5 and FM 17–80.

c. Combat command surgeon (FM 17–80). (1) When the combat command operates under direct division

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control, the attached surgeon is the combat command surgeon and operates and acts as advisor on medical matters to the combat commander. Liaison is maintained with the medical company rendering second-echelon support and with the medical battalion in the rear echelon. This close liaison will aid in evacuating the unit aid stations of casualties.

(2) When the combat command operates independent of the division, the surgeon has duties and responsibilities very similar to those of the division surgeon. Detailed medical plans are developed. Arrangements are made for second- and third-echelon support. The medical company rendering support must be attached directly to the combat command. This will insure adequate supplies for the medical element. Close liaison is established with the higher headquarters (corps or army).

d. Armored group surgeon. (1) When the armored group is operating as an independent command, a surgeon should be designated. His duties and responsibilities are similar to those of the combat command surgeon when the combat command operates independently. (See *c* (2) above.)

(2) *Elements of group attached direct to a higher headquarters.* Although the higher headquarters to which an element is attached is the administrative agency for that element, close, constant liaison between the designated group headquarters surgeon and higher headquarters medical agencies must be maintained to insure adequate medical supplies and evacuation procedures. To accomplish this, group headquarters medical liaison personnel must make a detailed evaluation of the recovery and evacuation facilities of the higher headquarters to which the unit is attached and

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submit recommendations for additional facilities to the commanding general or pertinent members of his staff when existing facilities are inadequate to meet the added evacuation burden.

e. Battalion surgeon. For duties see FM 17–80.

(1) *Of an organic unit.* The battalion surgeon must keep himself informed of the tactical situation and study the terrain over which the battalion will operate. The battalion surgeon presents his medical plan to the battalion commander for approval. Following the approval of this plan, he informs the supporting medical elements of its contents and keeps them informed of changes in the tactical situation. Future developments affecting the medical service of the battalion are transmitted to these officers.

(2) *As an independent unit.* The responsibilities of the battalion surgeon of an independent unit are very similar to those of the combat command surgeon. Close liaison must be established with the next higher headquarters. If existing facilities are not adequate, the higher headquarters to which the battalion is attached must be notified.

Section II. EVACUATION

27. MEDICAL EVACUATION WITHIN DIVISION. *a.* Axes of casualty evacuation are announced in the field orders of the division, combat command, group, or separate battalion.

b. Medical detachments in close support of combat elements evacuate casualties to aid stations or casualty collecting points established on the designated axis of evacuation of the battalion.

c. The armored division medical service, through the collecting platoons of its medical companies, evacuates cas-

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ualties from the battalion aid stations or casualty collecting points to clearing stations located along the designated axis of evacuation of the combat command or division. (See fig. 12.)

d. The clearing station is a mobile treatment station established by the clearing platoon of each medical company and provides facilities for necessary medical treatment pending further evacuation of the casualty. Each clearing platoon is equipped with two surgical trucks, each of which is a mobile operating room.

28. SUPPORT OF ARMORED MEDICAL UNITS. Divisional clearing stations established by the clearing platoons are normally evacuated by army to evacuation hospitals of the army medical service. In a fast-moving situation, army may establish clearing stations in direct support of the division elements.

Section III. BURIAL

29. GENERAL RESPONSIBILITY. The burial of casualties is an important function performed promptly to sustain soldiers' morale and fortitude, and to insure the health of the command. To facilitate the removal and burial of dead, every commander makes such plans as are necessary. These plans are based on current operating procedures and division administrative directives, and local conditions affecting the particular combat element.

a. Supply and evacuation section (G–4). The G–4 section coordinates the division plan for burial. The plan includes designation of cemetery sites, procurement and distribution of record forms and grave markers, responsibility for burial, hiring of civilians or designation of troops

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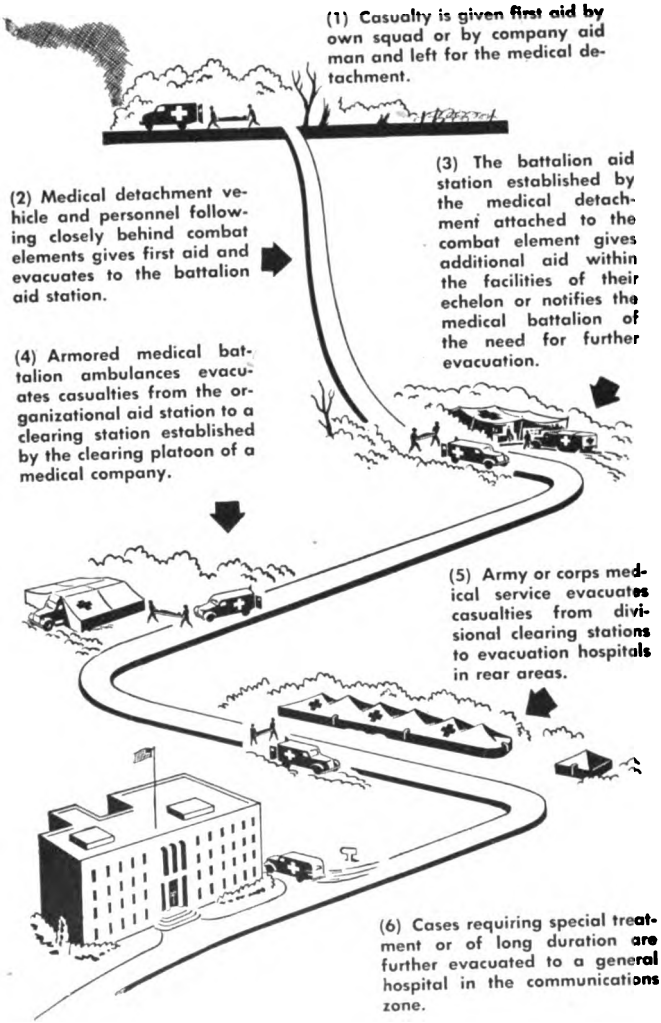
(1) Casualty is given first aid by own squad or by company aid man and left for the medical detachment.
(2) Medical detachment vehicle and personnel following closely behind combat elements gives first aid and evacuates to the battalion aid station.
(3) The battalion aid station established by the medical detachment attached to the combat element gives additional aid within the facilities of their echelon or notifies the medical battalion of the need for further evacuation.
(4) Armored medical battalion ambulances evacuates casualties from the organizational aid station to a clearing station established by the clearing platoon of a medical company.
(5) Army or corps medical service evacuates casualties from divisional clearing stations to evacuation hospitals in rear areas.
(6) Cases requiring special treatment or of long duration are further evacuated to a general hospital in the communications zone.

Figure 12. Personnel casualty evacuation, armored division.

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for burial duty, and other pertinent information applicable to the tactical operation.

b. Quartermaster. The division quartermaster is charged with implementing the division burial plan as follows:

(1) The procurement of grave markers and emergency medical tags (WD AGO Form 8–26 (Old WD MD Form 52b)) and their distribution.

(2) When so directed by division administrative orders, the procurement of supplementary civilian labor and necessary transportation.

(3) The direct supervision and control of the attached graves registration personnel.

(4) Division cemetery locations are coordinated with the division engineers, the division surgeon, and with pertinent army personnel.

c. Graves registration personnel. The graves registration personnel, usually one platoon per division (see T/O 10–297), operating under the direct supervision of the division quartermaster is responsible for—

(1) Coordination with G–4 in the acquisition of land for use as temporary burial places for deceased personnel of the army.

(2) The general supervision and control of all personnel assigned, attached, or detailed to the graves registration service.

(3) The proper burial of the dead under existing regulations.

(4) The proper marking and registration of all graves so as to enable identification of the dead and relocation of graves and cemeteries.

(5) The preparation of sketches and maps and the com-

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pilation of sufficient data to show the location of graves and cemeteries.

(6) A coordination of effort with graves registration unit officers in adjacent commands, with commanding officers of combat organizations, the medical service, and the chaplains corps. See FM 10–63 for complete details on the graves registration service.

d. The Chaplain. Although the graves registration personnel attached to the division are primarily responsible for burial of the dead, in emergencies the chaplain may be required to assist in this capacity in addition to conducting the burial service. For complete details see TM 16–205.

30. RESPONSIBILITY OF INDEPENDENT COMBAT COMMAND, GROUP, OR SEPARATE BATTALION. When the combat command, group, or separate battalion operate independently, the S–4 in cooperation with the S–1, the chaplain, and the graves registration personnel when they are present, are responsible for the unit burial plan. This plan includes the designation of cemetery sites, procurement and distribution of record forms and grave markers, and hiring of civilians or designation of troops for burial duty.

31. RESPONSIBILITY OF ORGANIZATIONAL COMMANDER. In the absence of graves registration personnel and a burial detail, it is the responsibility of the organization commander to accomplish burial and to initiate the necessary administrative procedure. Prior to an operation, he must formulate a plan, to include the procurement of necessary grave markers, GR Form 1 (Report of Interment), and WD AGO Form 8–26 (Emergency Medical Tags), from the quartermaster, in addition

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to detailing and supervising of burial parties and selecting burial sites when not specifically designated in the higher headquarters administrative order.

a. Duties of organizational burial party. The burial party is charged with the search of the battlefield, the choice of the burial site (par. 30), the identification of the body, the removal and disposition of personal effects, and the forwarding of grave registration data through proper channels. (See fig. 13.)

(1) *Search of battlefield.* The burial party will search the battlefield as thoroughly as time and combat conditions allow. The search made by the burial party is merely preliminary to the final and complete systematic search performed by grave registration personnel after the action has subsided or moved on.

(2) The identification of the body is usually made by identification tags, body scars, personal effects, or by members of the deceased's unit. One of the two identification tags, worn as prescribed by Army Regulations, will be attached to the remains when interred. The duplicate tag will be removed at the time of interment and attached securely to the grave marker about 2 inches from the top. When identification tags are missing, identification should be made by members of the organization of the deceased, and information placed in a bottle or canteen and buried with the body. When the body cannot be identified by the above methods, a complete set of fingerprints (all 10 fingers) should be made in the report of interment. If possible tooth charts and scars should also be recorded.

(3) Other personal effects, such as papers, letters, money, rings, watches, and other valuables will be removed from

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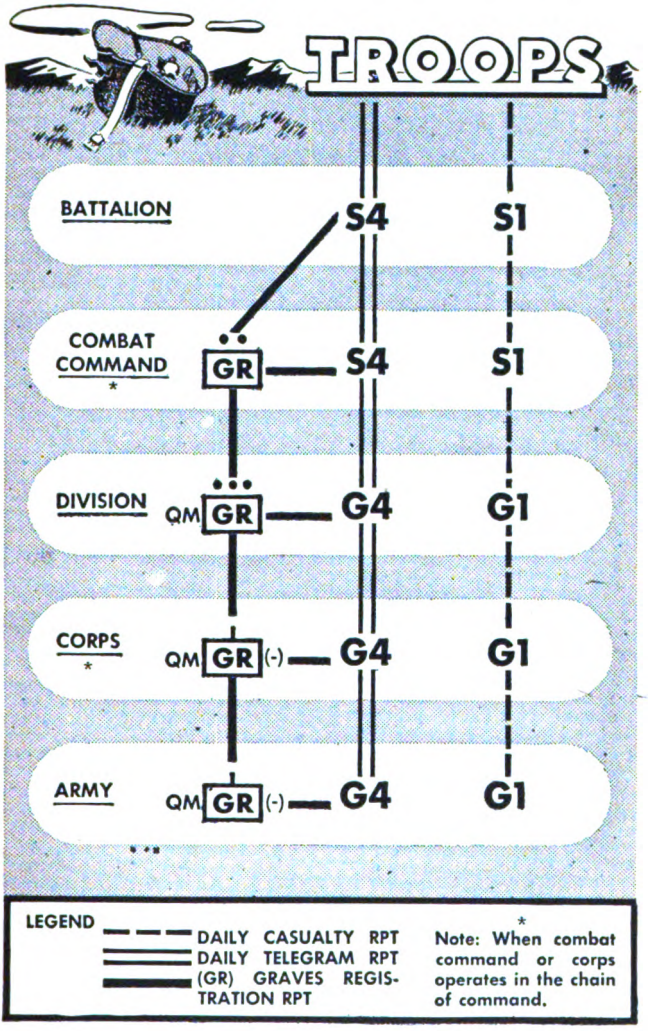

Figure 13. Channels for graves registration data.

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the body and turned in to the designated graves registration service officer for disposition.

(4) The officer or NCO in charge of the burial party will prepare a record of the identification tags, giving the cause and date of death, and place of burial and grave number, and submit it to the commanding officer of the deceased or to the next higher officer. For complete information on reports and records see FM 10–63. Whenever practicable, an officer or NCO of the medical battalion should accompany all burial parties to prepare an emergency medical tag for each body.

(5) The body usually is wrapped securely in a blanket and is temporarily interred in a shallow grave. The grave is then marked.

(6) The organizational burial party coordinates its duties with the activities of medical personnel and the chaplains corps.

b. Choice of burial site. Normally, the location of present cemeteries and proposed burial sites is announced in division (or combat command or group when operating independently) administrative orders. When the situation is such that present cemeteries and proposed locations unduly impede the burial operation, the burial party chooses their own locations. These sites are centrally located in order to concentrate as many graves as possible at one point, twelve graves being considered the minimum. In choosing a site consideration must be given to the road nets, the condition of the terrain and drainage in the area in the event that the graves must remain at the site for some time. These sites must be accurately located and plotted on a map, enabling graves registration personnel to find them when final graves location is effected.

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Section IV. PRISONERS OF WAR

32. PRISONERS OF WAR. ***a. General.*** (1) FM 27–10 specifies the persons who may be held prisoners of war.

(2) Rights, privileges, obligations, and treatment of prisoners of war are covered in FM 27–10, Rules Of Land Warfare. See FM 100–10 with reference to internment of enemy aliens.

(3) Functions of military police in connection with prisoners of war are covered in FM 19–5.

(4) Interrogation of prisoners is covered in FM 30–15.

b. Collection. The military police platoon establishes prisoner of war collecting points in rear of each major task force of the division on previously announced axes of evacuation. Organizations evacuate prisoners to these axes and move them under minimum guard to collecting points. Prisoners are turned over to the division (or next higher echelon) military police at this point who notify higher headquarters and hold them until they are evacuated by mobile MP evacuation squads from the army MP battalion. (See fig. 14.)

c. Evacuation. Prisoners are evacuated from combat zones as rapidly as practicable. Unless acting independently, the corps is not a link in the chain of evacuation of prisoners of war from division to army inclosures. The evacuation of those desired for intelligence examinations by corps headquarters is usually accomplished by corps military police. Wounded and sick prisoners are evacuated in the same manner as friendly wounded and sick.

d. Examination. Examination takes precedence over rapid evacuation except in forward areas where prompt removal of prisoners is usually the paramount consideration.

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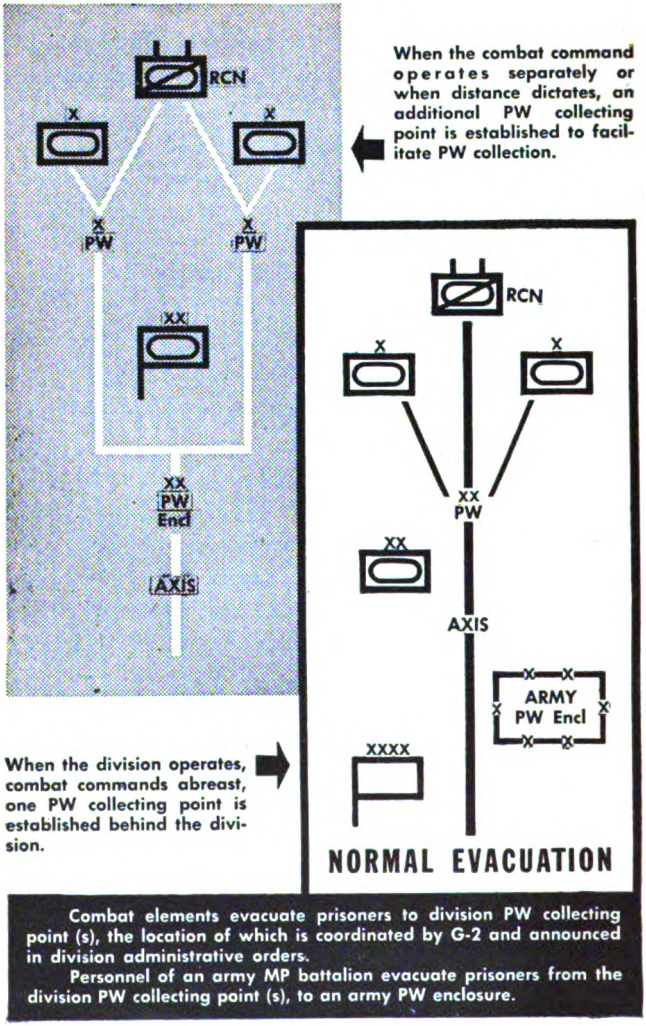
When the combat command operates separately or when distance dictates, an additional PW collecting point is established to facilitate PW collection.
RCN
X
X
X PW
X PW
XX
XX PW Encl
AXIS
When the division operates, combat commands abreast, one PW collecting point is established behind the division.
RCN
X
X
XX PW
XX
AXIS
ARMY PW Encl
XXXX
NORMAL EVACUATION
Combat elements evacuate prisoners to division PW collecting point (s), the location of which is coordinated by G-2 and announced in division administrative orders.
Personnel of an army MP battalion evacuate prisoners from the division PW collecting point (s), to an army PW enclosure.

Figure 14. Prisoner of war collection, armored division.

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Section V. VEHICULAR RECOVERY AND EVACUATION

33. GENERAL. Efficient maintenance procedure, expeditious battlefield recovery, and prompt evacuation and replacement of disabled vehicles insure the unimpaired striking power of the armored division.

a. Communications. Radio is the normal means of reporting disabled vehicles and requesting assistance from higher echelons. Concise, accurate description of location, and the nature and extent of disability is essential. Prevailing security measures in radio transmission must be adhered to.

b. Antipersonnel mines. Abandoned matériel is carefully inspected for booby traps. If booby traps are found they are disarmed and removed.

c. Contaminated materiel. Chemically contaminated vehicles and equipment are decontaminated by recovery units before use. When decontamination is beyond their means, matériel is plainly marked and its location reported to the unit chemical officer. Upon completion of decontamination, the chemical personnel concerned notifies the appropriate evacuation unit.

34. BATTLEFIELD RECOVERY. ***a.*** Maintenance sections follow their units into combat as closely as practicable to perform minor "on the spot" repairs, tow disabled vehicles to sheltered areas and make repairs where time and capabilities permit, or notify maintenance elements of the next higher echelon where disabled vehicles are located.

b. Battalion unit maintenance elements establish service parks, work in close cooperation with forward maintenance

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sections, expedite vehicle recovery to vehicle collecting points (VCP), to the axes of evacuation or to the unit service parks, and make repairs within their echelon.

c. Vehicle recovery operations frequently require the fire of supporting weapons. The use of organic maintenance weapons, smoke pots, smoke mortars and other smoke generating equipment is normal.

d. Night recovery may require daylight reconnaissance to determine the exact location of disabled vehicles and the best method of approach. Prior preparation is necessary to recover vehicles disabled in minefields. (See fig. 15.)

e. Close cooperation of rear echelon evacuation personnel with forward battlefield recovery elements is mandatory.

35. EVACUATION. *a. Ordnance maintenance battalion.* The ordnance maintenance battalion sets up the division service park as directed by G–4, preferably where hard standings, shelter, and repair facilities are available. In any case service parks are located on a good road net near the axis of evacuation and with adequate cover and concealment.

(1) VCP's and axes of vehicular evacuation are announced in division orders. Collecting points are desired near the axis of supply and evacuation, usually close (5 to 10 miles) behind the battlefield. They may be, and frequently are, the bivouac areas of the ordnance maintenance companies or detachments in support of the major combat elements of the command. When VCP's are located forward of the unit service parks, ordnance maintenance battalion evacuation parties evacuate from the VCP's. Otherwise, the forward limit of ordnance maintenance battalion

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Figure 15. Preparations for removing a vehicle disabled in a minefield.

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responsibility for evacuation is normally the unit service park. (See fig. 16.)

(2) Contact parties from the ordnance maintenance battalion, equipped with radio, operate in close cooperation with forward recovery elements to effect speedy repairs and prompt evacuation. The contact party advises on maintenance problems of the forward echelons and determines the extent of repairs to be made by the ordnance maintenance battalion in forward areas. Contact parties usually remain under division control. Under certain circumstances they may be attached.

(3) Normally the repair is made either in the unit service park, at the vehicle collecting point, or in place if time and the situation permit and repair is possible with tools, parts, and skilled personnel available. Otherwise it is evacuated to the ordnance maintenance battalion.

(4) Within the division, the vehicle driver accompanies his disabled vehicle through the various echelons of maintenance and assists in the repair of the vehicle. Upon completion of repairs the driver returns the vehicle to his unit. If vehicle repairs require a great length of time, or repair must be accomplished by army units, drivers are returned to units by the first available transportation.

(5) In the event combat forces are detached from the immediate support of the division service park, the ordnance maintenance battalion supports these detached forces with maintenance elements appropriate in size to the detached force.

(6) To facilitate maintenance, the division service park remains in a fixed position as long as it can give the combat elements adequate support. When a move is made it is normal for the ordnance maintenance battalion to advance

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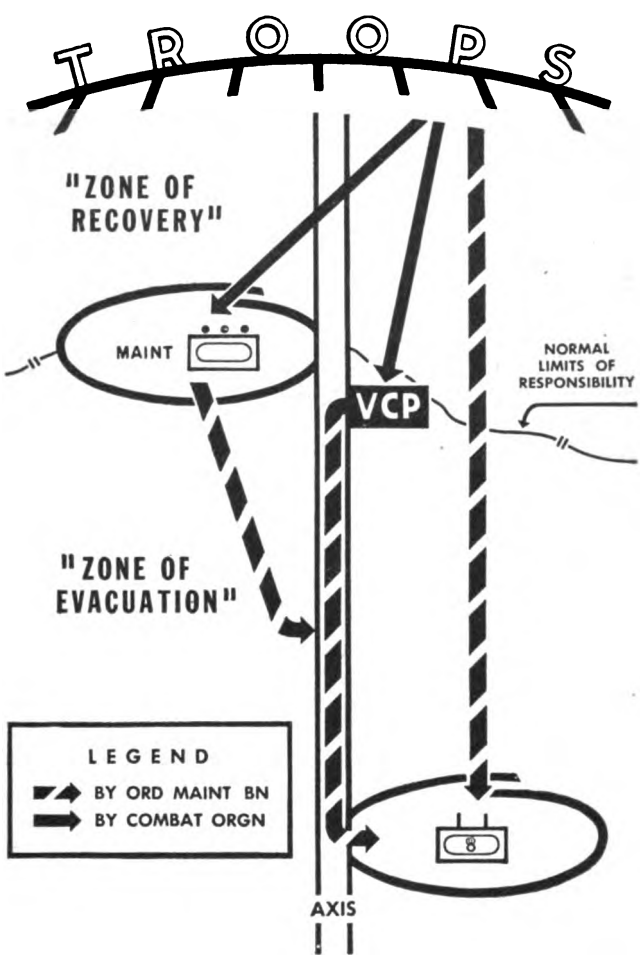

Figure 16. Vehicular casualty evacuation, armored division. Contact parties from the ordnance maintenance battalions operate in close cooperation with forward recovery elements to effect speedy repairs and prompt evacuation.

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its companies forward by bounds along the axis of evacuation. One or more companies move forward to open a new park while the remaining companies complete servicing of the disabled vehicles at the old service park or await disposition of disabled vehicles by higher headquarters maintenance elements.

(7) The division service elements repair all vehicles within their means and return to units all equipment that has not been previously replaced. All vehicles are fully stowed before return to service.

b. Army. Division responsibility for evacuation ends at the division service park. The division is supported by army fourth-echelon maintenance and evacuation units which evacuate from the ordnance maintenance battalion vehicles the repair of which is beyond the scope and time available to division maintenance. Vehicles repaired by army are delivered by army to the division service park.

Section VI. SALVAGE

36. DEFINITION. In time of war any article that is condemned, captured, or abandoned becomes salvage. (See TM 10–260.)

37. COLLECTING POINTS. *a.* In war, combat troops and quartermaster salvage agencies cooperate in the recovery of salvage materials. To the maximum extent consistent with the tactical situation, combat organizations collect and return to salvage collecting points or railheads all unserviceable and excess supplies and salvage, where quartermaster salvage companies sort and classify salvage and waste material. (See FM 10–10.) Salvage operations in detail are covered in FM 9–5, 10–5, 10–10, 100–10, and

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TM 10–260. In addition, these manuals prescribe the salvage functions of units of the services.

b. Salvaged vehicles and weapons are normally collected at the unit service parks. If the distance to the service parks becomes so great that salvage personnel are unduly hampered, collecting points favorable for transportation to the rear, are established in forward areas and designated in administrative orders. (See FM 100–10 and FM 101–5.) In assigning priorities for the transportation of salvage, unit supply officers give priority to serviceable, valuable, and easily repairable items.

38. RESPONSIBILITIES OF COMBAT UNITS WITH RESPECT TO SALVAGE OPERATIONS. *a.* "In divisions and higher units salvage operations are supervised by a salvage officer who functions under the unit quartermaster." (See FM 100–10.) Supply officers (S–4) of subordinate units supervise salvage activities within their respective units.

b. Unit commanders are responsible that transportation returning from the front is fully used for salvage. Further, they must see that no abandoned property is left behind and that no able man or prisoner of war returns from the combat area without bringing some salvage article with him. (See TM 10–260.) Arms and equipment accompanying the sick and wounded are collected by the salvage authorities at medical establishments.

39. ACTION TAKEN BY COMBAT UNITS WHEN SALVAGE IS NOT EVACUATED. When an advance takes place prior to evacuation of salvage which has been collected by combat units, or when move-

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ment of such material is impractical due to bulk of certain articles or inadequate transportation, the location of such equipment should be marked and reported through command or maintenance channels to the division salvage officer. When circumstances permit, it is desirable to report also the approximate amount and nature of the salvage material.

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CHAPTER 3

RAIL AND WATER TRANSPORT

Section I. WATER TRANSPORT

40. GENERAL. The movement of a unit overseas is a specialized operation involving the most minute and comprehensive planning. Since the details of preparation for the execution of the movement of troops by water depend upon and vary with the particular situation, this section deals with these factors common to all armored unit movements by sea. The following manuals contain related information:

FM 25–10, Motor Transport.
FM 101–5, The Staff and Combat Orders.
FM 101–10, Organization, Technical and Logistical Data.
FM 55–105, Water Transportation: Ocean-going Vessels.
FM 31–5, Landing Operations on Hostile Shores.
FM 60–20, Amphibian Tank and Tractor Battalions.
Preparation for Overseas Movements (POM).

41. PRELIMINARY PLANNING (see FM 100–5). Administrative plans prepared in detail prior to embarkation are interdependent with tactical plans and therefore are developed concurrently. Basic administrative decisions are made as early as possible.

42. SECURITY MEASURES. All officers in command of troops participating in war movements are personally responsible that information concerning names of organizations, route, names of ships, destination, port of embarkation, or sailing date is not discussed with or allowed

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to reach persons whose official duties do not require specific knowledge of the movement.

43. PREPARATION OF VEHICLES FOR OVERSEA SHIPMENT. The preparation of wheeled and half-track vehicles for water shipment is a direct responsibility of unit commanders.

a. When vehicles are combat loaded each vehicle is stowed prior to embarkation with its combat load, gasoline tank three-fourths full, at least 10 gallons of reserve gasoline in containers, not less than 1 gallon reserve engine oil, and 3 days rations.

b. Vehicles are partially waterproofed to protect them from the injurious effect of sea water and air during the oversea voyage.

c. Vehicles are carefully checked for fuel leaks and electrical short circuits prior to embarkation. Each vehicle is equipped with a ground wire for grounding when embarked. Vehicles are checked daily en route to insure serviceability upon landing.

44. SUITABILITY OF SHIP AND EQUIPMENT (see FM 55–105). When a movement of armored units by water is contemplated, the capacity of a ship's loading equipment and the size of its cargo doors and hatches are of particular importance. The capacity of the loading equipment assumes added importance when the debarkation may have to be accomplished on a hostile shore. Efforts must be made by the commander of the unit to be loaded to secure ships of sufficient capacity with loading equipment (booms, winches) and cargo doors and hatches capable of handling the larger and heavier equipment of

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armored units. In each case, a careful check must be made on available shipping space to determine whether or not every essential item of equipment can be loaded. When investigation shows that shipping space is inadequate or that available ships are not suitable, immediate steps must be taken to—

a. Secure additional shipping space.

b. Strengthen the loading equipment.

c. Enlarge cargo doors.

d. Notify higher headquarters in the event a satisfactory solution cannot be worked out..

45. TYPES OF LOADING. *a. Commercial.* Commercial loading utilizes ship space with maximum efficiency. It is applicable in movements between established and well-secured ports. Troops loaded by this method are not available for combat until they have landed and equipment and supplies have been issued.

b. Unit. Unit loading gives primary consideration to the readiness of troops and material for combat on landing rather than efficient utilization of ship space. The degree of readiness for employment depends upon the extent to which organizations are loaded for combat, as follows:

(1) Combat unit loading, in which assault units which are to land on a hostile shore are completely loaded on one ship with essential equipment and supplies immediately available for debarkation with the troops.

(2) Organizational unit loading, in which organizations with their equipment and supplies are loaded on the same transport, but not so loaded as to allow debarkation of troops and equipment simultaneously.

(3) Convoy unit loading, in which the troops with their

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equipment and supplies are loaded on transports of the same convoy, but not necessarily on the same transport.

c. Plans. A consolidated tonnage table is prepared for each transport showing the organizations and matériel to be embarked on that transport. Based on these tables and data and drawings furnished by the transport commander (see POM), a loading plan is prepared for each transport.

46. STOWAGE PLANS. After the loading plan for the transport has been completed, a stowage plan is prepared for each hold, magazine, and other compartments used for cargo. The data is taken from the consolidated tonnage tables, and indicates in detail how the items of cargo will be stowed in the space available. These include—

a. A drawing of the hold and the arrangement of cargo.

b. A table showing the items to be loaded and the organizations to which they belong.

47. DEBARKATION (see FM 31–5). *a. Ships-to-shore.* (1) In ship-to-shore operations, troops, matériel, and supplies are embarked in transports, cross the intervening water area, and are transferred to landing craft off the hostile shore to make the actual landing. Such operations are usually asociated with large-scale invasions over long water distances.

(2) Due to a preponderance of equipment the debarkation of armored troops must be planned in detail. If wharfage facilities are not available, barges, scows, or similar boats of a capacity of handle the larger and heavier equipment must be provided. In the latter case, unloading is dependent upon the capacity of the ship's unloading equipment.

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b. Shore-to-shore. (1) In shore-to-shore operations, troops, matériel, and supplies are embarked in landing craft or landing ships, cross the intervening water area, and debark onto the hostile shore from the same landing craft and landing ships. The scope of such operations is necessarily limited to relatively short water distances within the operating range of the landing craft and ships.

(2) In shore-to-shore operations, armored units may form either support or assault groups for landing operations. Tanks are moved in two ways; light tanks are either stowed on the transports and then loaded into LCM (Landing Craft Mechanized) for the ship to shore movement, or armored units are tactically loaded into LST's (Landing Ship Tank) at the port of embarkation and proceed in separate convoys guarded by the Navy. The latter method, using LST's, is the better as this landing craft can discharge the vehicles and personnel direct onto the hostile beach if hydrographic conditions permit.

48. AMPHIBIAN TANKS AND TRACTORS. For detailed information on transporting, supplying, maintaining, and evacuating amphibian tanks and tractors see FM 60–20.

Section II. RAIL MOVEMENTS

49. GENERAL. *For long distances* overland, rail movement of armored units, regardless of size, is the most suitable method of transportation. By using rail transportation armored elements can be spared many hours of marching, resulting in less maintenance and greater combat efficiency if the distance to be covered is long and the readiness of personnel and vehicles for combat upon arrival

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is of primary importance. *For short distances* where good roads are available, armored elements can march faster than they can be moved by rail.

a. The following factors determine the minimum distance which armored elements can be moved more rapidly by rail than by marching.

(1) Ready availability of railroad equipment.

(2) Time required to—

(*a*) Prepare for rail movement.

(*b*) Assemble at entraining points.

(*c*) Load and secure equipment.

(*d*) Clear entraining points.

(*e*) Make the actual rail movement.

(*f*) Unload equipment.

(*g*) Clear the detraining point.

b. Rail movements in theater of operations. (1) Narrow gauge railroads and limited rolling stock impose many restrictions on the establishment of an efficient rail transportation system in the theater of operations. Large scale plans for an operation must include provisions for rolling stock that will fit existing rail lines. In most cases this rolling stock will have to be brought from the zone of the interior.

(2) During the initial phases of a landing operation wharfage will not be available and shipping space will be filled to capacity with the combat vehicles, equipment, and matériel necessary to the execution of the immediate mission. During the time lag from the time a beachhead is established to the time a rail system is in operation, the army ordnance evacuation companies may be utilized for long overland movement of armor. In an operation involving the employment of tanks, army (or corps, when corps

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operates independently) should have available as many trucks, 40-ton, tank transporter vehicles, as necessary to transport tanks.

(3) The employment of these vehicles as prime movers must always be considered as strategic or tactical expedients. Their primary mission is the evacuation of disabled vehicles. Therefore, every effort must be made to restore existing rail lines to use.

50. RAIL LIMITATIONS. *a.* Hostile activities impose many limitations upon the use of rail transportation and often preclude its use except in rear areas.

b. Troops traveling by rail are seriously restricted in resisting attack. They can do little to protect the rail line from hostile interruption.

c. Capacities as to size and weight limitations of rail cars, engines, bridges, trestles, underpasses, tunnels, grades, and platform, station, sidetrack, and passing clearances, often require that devious routes be followed or preclude use of rail transportation altogether.

51. DEFENSE (fig. 17). ***a. At entraining points.*** (1) Protection may be furnished by antiaircraft artillery and air units. Supplementary protection is furnished by antiaircraft weapons of entraining units.

(2) Have loading and blocking crews at the train and all equipment ready before vehicles are brought out from concealment for loading.

(3) Jamming of vehicles on road before loading is avoided. They should come forward at such distance that loading will be continuous and without jamming of the column.

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(4) Blocking of vehicles is accomplished as rapidly as possible.

(5) Observe blackout restrictions at night.

(6) All antiaircraft weapons are manned.

b. En route. In issuing orders for the movement, the commander specifies that the following defense measures be taken:

(1) Mounting antiaircraft automatic weapons on flat cars or gondolas.

(2) Attaching some of the attached antiaircraft artillery to each train.

(3) Establishing suitable radio communications with air warning nets.

(4) Enforcing blackout restrictions at night.

c. At detraining points. (1) Have vehicular antiaircraft guns manned.

(2) Unlock vehicles and run them off the cars as quickly as possible.

(3) Move out and gain normal vehicular distances.

(4) Observance of blackout restrictions if detraining is at night.

52. REFERENCE TEXTS. The following manuals contain information relative to movements by rail:

a. FM 25–10 gives information relative to the types of railroad cars suitable for rail movements, preparation of vehicles for shipment and loading, and methods of securing and unloading of vehicles.

b. FM 100–5 discusses the arrangements, plans, and preparations for a rail movement. It also discusses duties of the commander and tactical aspects that are considered in such a move.

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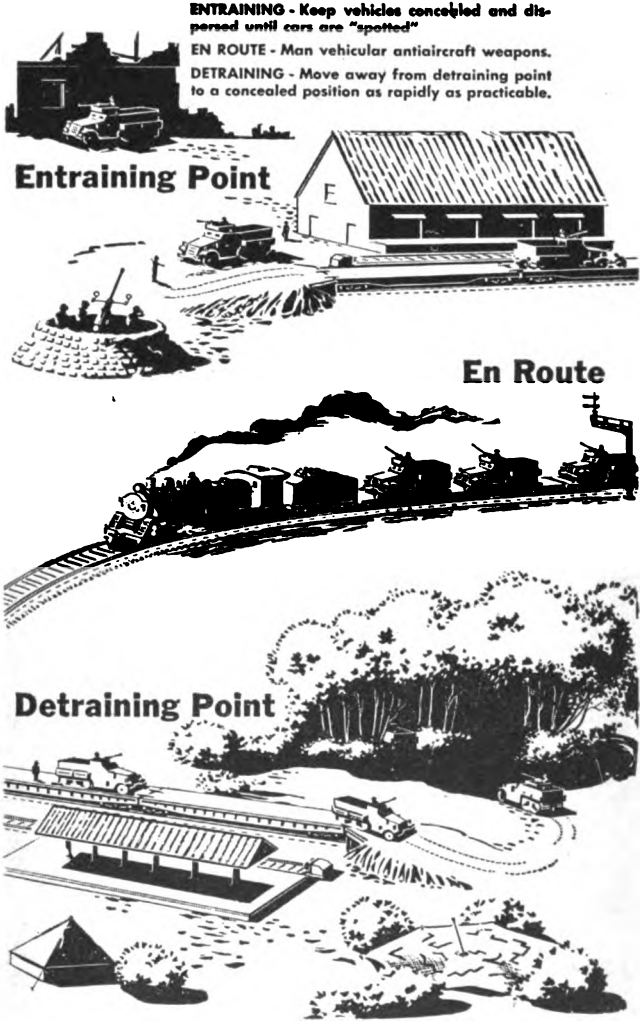
ENTRAINING - Keep vehicles concealed and dispersed until cars are "spotted"
EN ROUTE - Man vehicular antiaircraft weapons.
DETRAINING - Move away from detraining point to a concealed position as rapidly as practicable.
Entraining Point
En Route
Detraining Point

Figure 17. Defense of a rail movement.

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c. FM 100–10 contains information relative to the general organization, operation, and control of rail movements.

d. FM 101–5 contains forms of orders, check lists for orders, and entraining and detraining tables.

e. FM 101–10 contains detailed information relative to capacities of various types of railroad cars, loading, and other pertinent data.

f. FM 100–15 discusses strategical aspects of rail movements.

53. REFERENCE DATA. All data are based on Tables of Organization. FM 101–10 furnishes data necessary in computing rail movements of armored elements.

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CHAPTER 4

TRAINS AND TRAINS HEADQUARTERS COMPANY

Section I. GENERAL

54. SCOPE. This chapter covers organization and tactical employment of the division service elements (supply, evacuation, and maintenance), including personnel, which consist of division and subordinate unit and unit trains and trains headquarters.

55. DIVISION TRAINS. The division trains are the service elements of the division operating under the direct orders of the division commander and commanded by the division trains commander.

56. UNIT TRAINS. Unit trains are the service elements belonging to the units (battalions and companies). Each unit train is divided into a combat and a field train. (See Par. 18.)

57. ORGANIZATION OF DIVISION TRAINS.

a. The division trains consist of the following elements:

(1) Train headquarters and headquarters company.
(2) Ordnance maintenance battalion.
(3) Armored medical battalion.
(4) Unit personnel sections if no service echelon is set up.
(5) Attached units.

b. Elements of the maintenance and medical battalions are habitually employed in direct support of combat commands, control being retained by the division commander.

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Attachments to subordinate elements take place only when distances are too great for practical control by the division.

c. Train headquarters and headquarters company.

(1) Train headquarters is organized for the tactical control of organic elements of the armored division trains, attached units, and unit trains which may be under division control.

(2) Train headquarters company is composed of a company headquarters, reconnaissance platoon, and transportation platoon.

a. Company headquarters consists of a headquarters section, a maintenance section, and an administrative mess and supply section. The maintenance section performs second-echelon maintenance for the vehicles assigned to train headquarters and headquarters company and the military police platoon. The administrative mess and supply section contains equipment and personnel for the administration, messing, and supply of train headquarters company, the rear echelon of the division headquarters, the band, the military police platoon, and the chaplains.

b. The reconnaissance platoon is used principally to reconnoiter routes and bivouacs. It may be used in controlling marches and for billeting.

c. The transportation platoon is organized to transport personnel and equipment of the train headquarters and headquarters company, chaplains section, band, and the rear echelon of division headquarters.

58. DUTIES OF TRAINS COMMANDER.

The trains commander commands assigned and attached organic elements of division trains and as such is responsi-

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ble that these elements are adequately trained and function properly at their several duties. Training within the unit constituting the armored division trains is complicated by the continual conflicts between technical training and tactical training. The trains commander holds frequent conferences with the division ordnance and medical officers to insure well-balanced training plans.

a. Training duties. The duties of the train commander relative to trains are—

(1) (*a*) Preparation of tactical training programs for the organic components of the division trains in accordance with division training directives.

(*b*) Approval of tactical training schedules for assigned component units of the division trains.

(*c*) Supervision of tactical training, including driving instructions, marksmanship, marches, bivouac, security and defensive combat, but excluding technical training pertinent only to a particular component.

(*d*) Coordination of tactical training with technical training requirements.

(*e*) Conduct of inspections and tests to determine fitness of organic elements to perform tactical functions in the field.

(*f*) Preparation and conduct of command post and field exercises for the division trains. Unit trains should participate in some of these exercises.

(*g*) Training the attached band for use in the field. This personnel will be useful as traffic guides and medical and supply assistants in rear areas.

(2) For service elements of combat units, insure through conference with unit commanders that training in the subjects prescribed in (1) (*c*) above, is adequate for the proper

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performance of tactical functions in the field when part of division train.

b. Field duties. (1) Tactical control of division trains and attachments in support of the division plan of action.

(2) Route and bivouac reconnaissance for march control and disposition of division trains.

(3) Selection of bivouacs and preparation of plan of security for units of the division trains.

(4) The marking of routes from the trains bivouac to the rear limits of the division area of responsibility.

(5) Consolidation of information and supervision of the maintenance of situation maps.

(6) Preparation of advanced plans to keep abreast of proposed tactical operations.

Section II. TRAINING

59. GENERAL. Training is covered in FM 21–5 and FM 25–10. Training of the division trains stresses marches and march discipline, the use of cover and concealment in bivouac and at halts, security on the march and in bivouac. Emphasis is placed on night operations. During unit training, the trains commander, by directives and close supervision, assures himself that each unit of the trains is being properly trained. He inspects frequently and makes corrections as necessary.

60. TACTICAL EXERCISES. ***a.*** Frequent tactical exercises are held after the conclusion of the unit training phases. These exercises simulate combat conditions as closely as practicable. Problems are drawn giving the maximum of instruction in marches and security. Problems are

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graduated in difficulty and complication until the trains personnel are competent to deal with every type of situation encountered in combat. Technical functions are carried out under combat conditions.

b. Problems that are merely road marches or occupation of bivouacs soon become uninteresting and thereafter contribute little to training. After the techniques of marching, occupation of bivouacs, and security have been practiced, tests are conducted by having columns attacked by airplanes and by ground troops. Test securtiy measures in bivouac. Have aerial photographs made of bivouac areas. Examine these photographs for error in camouflage and breaches of camouflage discipline. Bring errors to the attention of the unit commanders.

Section III. CONTROL, COMMUNICATION, LIAISON, AND ORDERS

61. CONTROL. *a.* The train commander exercises control of division trains through organic unit commanders and attached train commanders.

b. An accurate record is maintained at train headquarters of vehicles and their armament belonging to organic units and attached elements. Locations of elements under the train commander's control and the coordination of their defense is shown in detail on the situation map.

c. When the trains march in one column, the column is commanded by the train commander. If the trains march in more than one column, the column commanders are designated by the train commanders. These column commanders may be the senior unit commanders in the respective columns.

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d. By giving orders designating routes, report or phase lines and rates of march, the train commander controls all train columns. He gives instructions to the commanders of these columns orally, by radio, or by messenger. The commander of each column controls his column through subordinate commanders in the same manner. The use of radio may be limited or prohibited at any time; therefore, it is essential that definite plans be made and clear instructions issued in advance.

62. COMMUNICATIONS. *a.* The train commander normally uses radio or telephone for communications. In addition he has messengers mounted in ¼-ton trucks. Telephone service is used in bivouac when practicable. Strict radio and wire discipline is maintained. For restrictions on the use of radio in the clear, see FM 24–5 and FM 17–70.

b. If the field trains of the combat command are placed under division control, the field trains commander, causes one SCR–506 to enter the division trains command net.

c. Information of the enemy is obtained by the S–2 trains over the SCR–506 which is in the division reconnaissance net.

d. Communication with division headquarters is effected as follows:

(1) When the adjutant general bivouacs with the division trains commander personal liaison or telephone is established.

(2) When the service echelon is established and the adjutant general and the trains commander are not bivouacked together the trains commander causes the utility SCR–506 to enter the division administrative net.

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63. LIAISON. *a.* The train commander habitually maintains liaison with forward echelon of division headquarters by a liaison officer, and by personal visits by himself and his staff officers.

b. Organizations of the trains habitually maintain liaison agents at the trains command post.

c. When an element is attached, a liaison agent is immediately dispatched to the train command post.

64. ORDERS. *a.* FM 101–5 gives forms for field orders. The train commander issues orders that are usually oral and frequently fragmentary. They are supplemented by overlays, marked maps, sketches, or marked air photographs.

b. Source of trains commander's orders. To insure coordinated logistical support the trains commander makes detailed plans and dispositions in accordance with higher headquarters directives.

(1) The trains commander prepares those portions of the division administrative orders pertaining to trains. They are authenticated by the G–4 in the name of the commander and issued through normal G–4 channels.

(2) Field orders covering all essential aspects and phases of an operation may carry directives pertaining to trains.

(*a*) Security measures, including antiaircraft and antimechanized protection for trains and tactical dispositions effecting the employment of trains are in paragraph 3 of the field order. When tactical dispositions of supply, maintenance, and evacuation elements are considered, G–4 is consulated to insure coordinated logistical support.

(*b*) The preparation of paragraph 4 pertaining to administrative functions is the responsibility of G–4. Disposi-

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tions of trains may be given in detail or reference made to the pertinent administrative order.

(3) When speed is imperative, fragmentary orders may be issued successively as the situation develops. They consist of separate instructions issued through the G–4 section in the name of the commander to gain immediate logistical support.

(4) Oral orders are used frequently in fast moving situations. G–4 is the coordinating agency in order to facilitate attachments and detachments of subordinate train elements.

Section IV. MAINTENANCE, EVACUATION, AND SUPPLY

65. GENERAL. *a.* Each unit has a maintenance section for its vehicles and receives direct support from the ordnance maintenance battalion. Unit trains attached to division trains are serviced by their own maintenance personnel. Third-echelon repairs are performed by the ordnance maintenance battalion.

b. Medical requirements of train headquarters and headquarters company and attached elements not having medical personnel are a responsibility of the medical battalion. (See FM 17–80.)

c. The commander of the train headquarters company is responsible for the supply, evacuation, and maintenance of the rear echelon, division headquarters, the band, the military police platoon, and attachments which do not have the facilities for these functions. This is in addition to his normal responsibility for the administration of his company.

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Section V. RECONNAISSANCE

66. MEANS. The trains headquarters company has a small reconnaissance platoon which is used for route and bivouac reconnaissance. It is not strong enough for extensive reconnaissance missions. Additional personnel and vehicles for the reconnaissance platoon are obtained when necessary from attached units.

67. ROUTE RECONNAISSANCE. ***a.*** It is essential that the train commander know the condition of all routes from the supply points to the train bivouacs and from the train bivouacs to the combat units. Although the trains commander has no responsibility for traffic circulation, he must obtain accurate information on routes.

b. Reconnaissance information of routes from the bivouac to the forward areas may be received from the forward echelon of division headquarters. *It is the duty of the train commander or his staff to obtain this information. A marked map or overlay is the best means of showing it.* The train commander causes the reconnaissance platoon to make initial reconnaissance. He may make such additional personal reconnaissance in coordination with assigned organizational commanders as he deems advisable. The train commander should have a complete record of odometer readings on all routes the trains may use. (See fig. 18.)

Section VI. MARCHES, BIVOUACS, SECURITY

68. MARCHES. ***a. General.*** Marches are conducted as prescribed in FM 25–10. Training in march technique for the division trains emphasizes night move-

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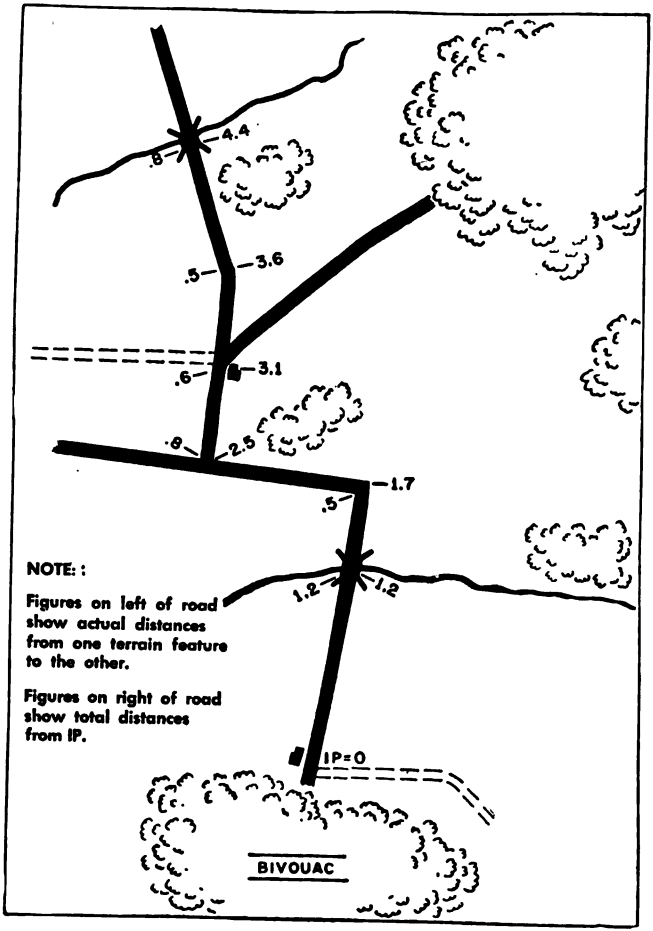

Figure 18. Route reconnaissance. Note odometer reading of land marks.

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ment, varied composition of the columns, and frequent attachments.

b. Formations. The division trains march in one or more columns as prescribed by the traffic circulation directives. Advance guards, rear guards, and flank reconnaissance parties are detailed from each column as required.

69. **BIVOUACS.** *a. General.* The general area for the train bivouas is usually designated by the division commander.

b. Allotment of areas. (1) In order to allot areas properly, the train commander keeps an accurate account of attachments and detachments and plans for units joining or leaving the bivouac.

(2) The following considerations govern the location of units in bivouac:

(*a*) The division rear echelon is locatoed so that it will receive protection from other units.

(*b*) In an action against an enemy that observes all rules as set by the Geneva Conference, care should be taken not to locate the medical battalion in such proximity to other units or installations that it might be inadverently hit by enemy fire.

(*c*) The ordnance maintenance battalion is located so that it can set up its maintenance facilities without undue delay and also be near the roads used for evacuation of vehicles.

(*d*) Unit trains are placed so they can move to their respective units without confusion. *The trains of each* combat command are grouped separately.

(*e*) Normally the rear echelon division signal company, the rear echelon division headquarters and the trains headquarters are bivouacked in close proximity.

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70. SECURITY. The subject of security is covered in FM 100–5. The train commander is responsible for the security of the division trains, including attachments, both on the march and in bivouac, while these elements are under his control. Each subordinate element is responsible for its own local security, but the security of the trains as a whole cannot be delegated to a lower unit.

a. Means. (1) Each organization of the division trains, except the medical battalion, is provided with individual arms, machine guns for use against either ground troops or aircraft, and antitank rocket launchers.

(2) Should additional protection be necessary, the train commander must call upon the division commander for attachment of combat troops. These detachments may consist of any or all of the following: antiaircraft, tank destroyer, tank and infantry units. Antiaircraft troops are prepared to give antitank support when necessary. (See FM 44–2.)

(3) When antiaircraft artillery weapons protect the trains, the antiaircraft artillery commander determines how his troops can best be used and recommends a plan to the trains commander. Advantage is taken of the information furnished by the antiaircraft artillery air warning service and antiaircraft artillery air intelligence service.

(4) Means of security will vary because of the constant change in attachment and the tactical situation of troops. Any plan for security must, therefore, be flexible.

b. Organization and operation of train defense. (1) The train commander organizes the defensive system for the division trains. He assigns defensive missions to the elements under his control and coordinates these missions for all-around defense.

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(2) The defense of division operated distributing points, and collecting and clearing stations in the rear area is sometimes delegated to the train commander. Where these points lie outside the train defense, or capabilities, the train commander calls on the division commander for additional troops.

c. *On the march.* (1) *Against ground attack.* (*a*) Although the trains march behind the combat troops and receive some protection from these troops, each column must provide for front, flank, and rear security. Some security is gained from adjacent troops and by marching on routes away from the exposed flank.

(*b*) A constant source of danger to the marching column comes from small enemy patrols infiltrating through or bypassed by the combat troops. Isolated groups are overcome by the organic weapons of the column. To counter stronger forces the train commander uses available combat troops or calls for additional help.

(*c*) Commanders of columns form advance guards and flank patrols from available vehicles and personnel. Contact is maintained with adjacent columns.

(*d*) Antitank rocket launchers in the column are kept ready to repel armored vehicles.

(2) *Against air attack.* Security from air attack is obtained by—

(*a*) Maintaining proper interval.

(*b*) Keeping all weapons prepared for immediate action against attacking aircraft.

(*c*) Contact with the air warning service when antiaircraft units are attached, and prompt transmittal of air warnings.

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(*d*) Use of cover at halts, or dispersal of vehicles if cover is not available.

(*e*) Use of attached antiaircraft elements. (See FM 44–2.)

d. In bivouac. (1) *Against ground attack.* (*a*) Security from ground attack in bivouac is obtained by—

1. Use of natural and artificial obstacles.
2. Establishment of outposts.

(*b*) Select bivouacs that will give maximum protection from ground attack, especially mechanized attack. Erect artificial obstacles as necessary. Use antitank mines and cover them with machine guns and individual weapons.

(*c*) Use available personnel to establish outposts. Each unit is given a sector of the outpost line to establish. When practicable, combat vehicles undergoing repair in the ordnance maintenance battalion are available for train defenses.

(*d*) Use attached combat elements for outpost duty.

(*e*) An outpost reserve is maintained. If combat troops are not available, service units are designated and placed on the alert status for the purpose.

(*f*) In addition to the outpost system, each unit must maintain a close-in defensive system to protect against small raiding parties. (See FM 17–42 and FM 17–33.)

(2) *Against air attack.* (*a*) In bivouac, security against air attack is obtained primarily by concealment, dispersion, and camouflage.

(*b*) Vehicular weapons are manned. They are emplaced for firing from ground positions whenever practicable.

(*c*) Attached antiaircraft troops are located to give all-around protection.

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(*d*) Each element maintains sufficient air warning posts. All men keep individual weapons available.

e. Firing against aircraft. All units take measures for immediate protection against low-flying aircraft by using their own weapons which are suitable for fire against aircraft. All troops charged with this duty are constantly prepared for immediate action, but will fire only upon order of an officer or responsible noncommissioned officer. No aircraft will be fired upon unless it has been clearly recognized as hostile or is positively identified as hostile or attacks with bombs or gun fire. Commanders of all echelons personally are responsible that the above restrictions are observed.

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	Paragraph	Page
Burial:		
Chaplain	29	36
Choice of burial site	31	39
Duties of organizational burial party	31	39
General responsibility	29	36
Graves registration personnel	29	36
Quartermaster	29	36
Responsibility of independent combat command group or separate battalion	30	39
Responsibility of organizational commander	31	39
Search of battlefield	31	39
Supply and evacuation section (G–4)	29	36
Control, communication, liaison, and orders:		
Communications	62	68
Control	61	67
Liaison	63	69
Orders	64	69
Source of trains commander's orders	64	69
Functions and responsibilities of combat command and armored group supply and evacuation sections:		
Combat command	9	5
Combat command or group	7	4
Division	7	4
Elements of the group attached to a higher headquarters	10	7
Functions of the supply and evacuation (S–4) section	9	5
Operating independently	9	5
Scope	8	4
Armored group as an independent command	10	7
Under division control	9	5
Function and responsibility of unit supply officers:		
Action completed	14	10
Action pending	14	10
Additional	14	10

Digitized by Google

	Paragraph	Page
Jacket file	14	10
Records	14	10
Requisition file	14	10
Requisition register	14	10
Responsibility of unit commander	15	10
Responsibility of unit supply officer	13	9
Supply and evacuation section	12	8
Maintenance, evacuation and supply	65	70
Marches, bivouacs, security:		
Allotment of areas	69	73
Bivouacs, general	69	73
Formations	68	71
In bivouac, against air attack	70	74
In bivouac, against ground attack	70	74
Marches, general	68	71
Means	70	74
On the march, against air attack	70	74
On the march, against ground attack	70	74
Organization and operation of train defense	70	74
Security	70	74
Medical supply:		
Armored group surgeon	26	33
Battalion surgeon, of an organic unit	26	33
Combat command surgeon	26	33
Division surgeon	26	33
Duties	26	33
Elements of group attached direct direct to a higher headquarters	26	33
Employment	24	32
Liaison	26	33
Organization	24	32
Planning	26	33
Responsibilities of division, combat command, group and battalion surgeons	26	33
Supply procurement	29	32

Digitized by Google

	Paragraph	Page
Personnel, casualty recovery and evacuation:		
Medical evacuation within division	27	35
Support of armored medical units	28	36
Prisoners of war:		
Collection	32	43
Evacuation	32	43
Examination	32	43
General	32	43
Procurement and distribution of supplies:		
Army "type load" motor trains	18	13
Class I	19	14
Class I, field ration A	19	14
Class I, field ration B	19	14
Class I, field ration C	19	14
Class I, field ration D	19	14
Class I, field ration K	19	14
Class I, field ration, 10-in-1	19	14
Class II, general	20	20
Class III	21	22
Class IV	22	25
Class V	23	25
Class V, guide for supply procedure	23	25
Organization of supply transportation	18	13
Property accounting	17	12
Rolling reserve	18	13
Trains	18	13
Water	19	14
Rail movements:		
At detraining points	51	59
At entraining points	51	59
Defense	51	59
En route	51	59
General	49	57
Rail limitations	50	59
Rail movements in theater of operations	49	57
Reference data	53	62
Reference texts	52	60

Digitized by Google

	Paragraph	Page
Reconnaissance:		
Means	66	71
Route reconnaissance	67	71
Salvage:		
Action taken by combat units when salvage is not evacuated	39	51
Collecting points	37	50
Definition	36	50
Responsibilities of combat units with respect to salvage operations	38	51
Supply, general:		
Alternate plans	3	1
Classification of supplies and definitions	4	2
Flexibility	3	1
Organization	6	4
Planning	3	1
Purpose	1	1
References	5	2
References, general	5	2
Scope	2	1
Training:		
General	59	66
Tactical exercises	60	66
Trains and trains headquarters company, general:		
Battalion trains	56	63
Combat command trains	56	63
Combat trains	56	63
Division trains	55	63
Duties of trains commander	58	64
Field duties	58	64
Field trains	56	63
Organization of division trains	57	63
Scope	54	63
Train headquarters and headquarters company	57	63
Training duties	58	64
Unit trains, general	56	63

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	Paragraph	Page
Vehicular recovery and evacuation:		
Antipersonnel mines	33	45
Army	35	46
Battlefield recovery	34	45
Communications	33	45
Contaminated matériel	33	45
Evacuation	35	46
Ordnance maintenance battalion	35	46
Water transport:		
Amphibian tanks and tractors	48	57
Commercial	45	55
Debarkation	47	56
Debarkation, ships-to-shore	47	56
Debarkation, shore-to-shore	47	56
Plans	45	55
Preliminary planning	41	53
Preparation of vehicles for oversea shipment	43	54
Security measures	42	53
Stowage plans	46	56
Suitability of ship and equipment	44	54
Types of loading	45	55
Unit	45	55

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